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GASTROSCOPY *

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It is unnecessary, in a paper attempting to enlist interest in gastroscopy, to emphasize the frequency of cancer of the stomach and how rarely this disease is diagnosed in an early stage. Only one question presents itself for discussion. Is gastroscopy an efficient and practical method of viewing the interior of the stomach? By an efficient method is meant one which permits the details of the mucous membrane of a sufficient portion of the stomach to be seen clearly. By a practical method is meant one which is not dangerous and does not entail too much inconvenience or suffering on the part of the patient, and, perhaps, one which furnishes more information than other existing methods of objective examination.

No one, for instance, would question the value of inspecting the interior of the stomach or the obligation which rested on the physician of insisting that patients with new gastric symptoms should submit to an examination of this character if he believed that the procedure was really efficient and practical in the sense just defined.

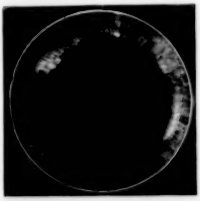

Fig. 1.—Cardiac sphincter—direct view.

It is the object of this paper to show to the members of this Section how much of the interior of the stomach can be seen, how clearly it can be seen, and with what little inconvenience in the normally formed person.

Although I believe that anyone who witnesses this demonstration would be forced to admit that on this patient, at least, gastroscopy is an efficient and practical method of viewing the interior of the stomach, the fact nevertheless remains that for more than thirty years numerous attempts have been made to improve the technic of gastroscopy without gaining for this method of examination even a small part of that recognition which cystoscopy has acquired. This consideration naturally reflects some doubt on any claim to improvement which would place gastroscopy on a new plane of efficiency.

Figure 1 represents the cardiac sphincter. Figures 2 and 3 represent the entrance to the pyloric region of the stomach at the place of transition from the vertical portion of the stomach to the horizontal portion. Figure 4 represents a view in the opposite direction toward the fundus or cardiac region. It illustrates the anterior and posterior walls of the stomach separated by a central cleft-like cavity. Figures 2, 3 and 4 are seen through an indirect telescope viewing the mucous membrane at right angles to the direction of the instrument. Figure 5 represents the stomach in the direction of the greater curvature viewed directly. It must be quite evident to anyone that, if views of such a degree of clearness can be obtained within the stomach, the method of examination is not only of positive, but also of negative diagnostic value. The character of these views depends alone on efficient illumination. I have tried four other types of telescopes, but have been unable to obtain the satisfactory view of the interior of the stomach here demonstrated until I had constructed the lamp and lens system of the instrument used in this demonstration. The lamp is as large as the caliber of the sheath of the instrument and furnishes sufficient light to illuminate the whole of the distended stomach.

The use of so large a lamp is made possible by the device for pressing it to one side after it has been introduced into the stomach. I have compared its degree of illumination and the views possible by it with those obtained by the indirect type of instruments made on the plan of the indirect cystoscopes and am convinced that the latter type of instrument will not enable one to see distinctly within the stomach. The lens system does not afford a view through a wide angle, but enables the eye to see clearly up to within 4 inches from its surface.

When suspicious appearances are found the direct view telescope may be focused on the area, as illustrated in Figure 5, and a piece removed for microscopic examination. Up to the present I have made a positive diagnosis by one or the other of these methods in twenty cases of cancer of the stomach. The roentgenoscopic examination was negative in two of these cases. The field of usefulness of the Roentgen examination of the stomach and of gastroscopy are not quite the same. But the two methods complete each other well. Roentgenoscopy furnishes accurate information regarding the condition of the pylorus. This is, of course, the most important region of the stomach in which the largest number of ulcers and carcinomas originate. On the other hand, gastroscopy furnishes exact information, both positive and negative, about the condition of the vertical portion of the stomach. This includes by far the largest portion of the stomach and the region of the lesser curvature, but not the region, perhaps, in which the majority of ulcers and cancers originate. It does, however, include a region occupied by a large proportion of cancers and those which

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

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are particularly difficult to recognize clinically or by any other method of objective examination, even including Roentgen cinematography. One can, therefore, see inside the stomach with a degree of clearness which completes in a needed manner other existing objective methods of examination. It is possible, moreover, in the normally formed person, to make the examination without undue discomfort and with safety.

I am convinced that, if proper gentleness and carefulness of technic are exercised, it is possible to diagnose cancer of the cardia simply with the aid of cocainization of the pharynx and without causing pain or an amount of discomfort to which a normal person would object.

Some discomfort, except in rare persons, is experienced and the nervous apprehension of the average patient at the thought of having a rigid instrument inserted into the stomach is such that I have concluded that the examination in a large percentage of patients is more satisfactorily conducted under a general anesthetic. For this purpose we have in intratracheal anesthesia, a new method which makes possible in gastroscopy that which previously has not been possible. For gastroscopy it is superior to intravenous or rectal anesthesia because it prevents any obstruction to the elimination of the ether which may be caused by pressure of the gastroscope on the trachea. It is possible, moreover, to conduct the whole examination after the administration of a small amount of ether under nitrous oxid and oxygen by a method perfected for this purpose and about to be described. I believe that the possibility of conducting gastroscopy under nitrous oxid and oxygen anesthesia introduces a new consideration in gastroscopy which, if it proves uniformly successful, will remove the last objection to the routine use of this method of examination on the ground of discomfort to the patient. Certainly, if it is possible to examine the interior of the stomach in a patient anesthetized with an anesthetic associated with so few unpleasant after-effects as those which follow nitrous oxid anesthesia, there should be no objection to the routine application of a gastroscopic examination when what it reveals may mean so much to the patient.

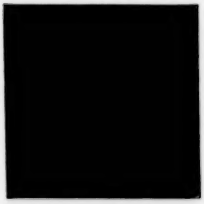

Fig. 2.—Entrance to the pyloric region of the stomach at the place of transition from the vertical to the horizontal portion—indirect view.

Fig. 3.—Entrance to the pyloric region of the stomach at the place of transition from the vertical to the horizontal portion—indirect view.

As regards the safety of gastroscopy, are there any dangers connected with passing a rigid tube into the stomach? Dr. Chevalier Jackson long ago proved that the procedure is devoid of danger; and how can it be otherwise if the eye of the observer is always kept on the distal end of the instrument? If the end of an instrument which is inserted into the esophagus and then into the stomach is never allowed to progress except where the folds of mucous membrane fall away before it by air distention in its passage down the esophagus, how can any injurious trauma be caused? Except in the case of one patient at the very beginning of the work when my technic was faulty, I have never had any unpleasant consequences.

The late diagnosis of gastric cancer, particularly of cardiac cancer, has long been a blot on the reputation of medicine. I believe that we now have two methods, Roentgen cinematography and gastroscopy, which do not cover the same field, but which complement each other, and by which it is possible to make the diagnosis of carcinoma of the stomach when the presence of this disease is suspected. It is no longer a question of inability to make the diagnosis, but, in the words of Dr. Jackson, of "looking and seeing."

Fig. 4.—View toward the fundus or cardiac region—indirect view.

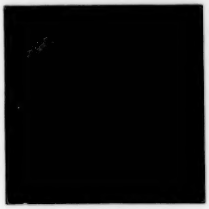

Fig. 5.—The stomach in the direction of the greater curvature, viewed directly.

It may perhaps be a question of the patient's complaining of symptoms early enough, but if gastroscopy and roentgenoscopy are made a routine in cases in which the diagnosis of cancer is among the possibilities, a large proportion of carcinomas of the stomach will be found in a stage in which it is possible to do something for them. Of not less importance, perhaps, is the consideration that we shall be discharging an obligation which we owe these patients.

It is surely desirable to be in possession of the information afforded by these two methods of examination before resorting to exploratory incision. If this rule is followed the exploratory operation may prove unnecessary, or, if this is indicated, the surgeon will be in a better position to proceed with a radical operation.

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ONE HUNDRED CASES OF WATER-TRAP STOMACH *

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In the examination of a patient with an apparently severe digestive condition, the first essential point is to determine which part of the digestive tract is particularly to blame for the symptoms. This can be accurately ascertained only by means of a most searching roentgenologic examination. Diagnosis by symptoms, as well

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as by many of the clinical tests, has been found very misleading. In a large number of cases a general visceroptosis can be diagnosed in the course of a physical examination, especially in multiparas with lax abdominal walls and protuberant abdomens, but even here mistakes can be made, as proved by roentgenograms.

There are two theories of ptosis generally accepted:

1. Glénard's theory, according to which it is a nutritional disease and "hepatic diathesis" with atrophy and prolapse of the small intestine. This would practically condemn the sufferer to everlasting invalidism.

2. Stiller's theory, according to which it is a universal asthenia, characterized by weakness and laxity of the viscera, and is manifested by degeneration. Surgical procedure would, therefore, be useless. Against this theory is the fact that enteroptosis is rare in men and frequent in women.

We believe the water-trap stomach to be a morphologic entity, a deformed organ which gives rise to a certain definite train of symptoms.

The factors generally acknowledged as causing the disease are misuse of corsets, tight lacing and changes due to pregnancy and childbirth. These factors are undoubtedly very strong, but the congenital side has usually been overlooked or underestimated. Rövsing has divided the subject into virginal and maternal coloptosis. Virginal coloptosis, he says, begins in the first or second year after puberty, and is characterized by persistent constipation, cardialgia and the eating of many small meals.

This condition, we believe, is due largely to congenital causes, such as faulty development of the gastro-intestinal tract associated with abnormally long mesenteries of the stomach or colon, and the very common condition of a long pelvic colon. Given these conditions, bad habits and bad intestinal hygiene may bring on the symptoms found in these patients. The influence of corsets and tight lacing have, we believe, been greatly overestimated. As a rule, when one asks the question as to tight lacing the patient replies, "No, I never could lace tight; the pressure on my stomach made me too uncomfortable." On the other hand, there is the other type in which tight lacing may have been one of the strong factors, as shown by the depression of the ribs and the elongated flattened liver.

In these virginal cases the patients show almost invariably a very long bony thorax and narrow costal angle, and a comparatively large pelvis. There is too little room in the upper abdomen for the organs that naturally belong there. The abdominal muscles in these patients are usually well developed, with firm recti and no lax bulging abdominal wall. These patients often have the type of organ about to be described—the water-trap or drain-trap stomach.

The chief characteristic of this stomach is the relatively high, but normally placed, pyloric outlet, which is well held up by the gastrohepatic ligament and the retroperitoneal tissue to the spine. The vertical diameter is always long. In sixteen of our cases which we studied in detail, the longest diameter, usually nearly vertical, varied from 23 to 38 cm. (from 9 to 15 inches), averaging 26 cm. (10½ inches). The distance from the junction of the first and second portions of the duodenum to the most dependent portion of the greater curvature is abnormally long. This portion of the stomach, briefly referred to as the pyloric arm, varied from 13.5 cm. (5¼ inches) to 24 cm. (9½ inches). In other types of stomach this distance varied from 4 cm. (1½ inches) to 8 cm. (3 inches), which length is in itself sufficient to rule out deformity of water-trap type. The average length of the pyloric arm in the sixteen cases referred to was 16.5 cm. (6½ inches). The distance from the umbilicus, or from a line drawn across the upper level of the iliac crests varied from 7.5 to 20 cm. (from 3 to 8 inches). This distance in normal stomachs averages 3.5 cm. (1½ inches). These measurements were made on roentgenograms taken from one to five minutes after the administration of a bismuth meal consisting of 90 gm. of bismuth subcarbonate suspended in 600 c.c. of fermented milk. The water-trap stomach might almost be considered as a ptosed organ, with the first portion of the duodenum and the pylorus fixed in proper position, giving the characteristic long pyloric arm and resemblance to a water-trap. The colon in the sixteen cases cited was ptosed in amount corresponding to the degree of ptosis of the greater curvature of the stomach.

In practically every case of water-trap stomach the colon is either ptosed or there is a very long loop in the transverse portion, which corresponds in contour to the greater curvature of the stomach. In our classification of colons we consider the colon ptosed only when the

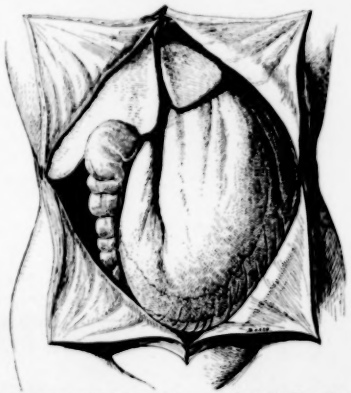

FIG. 1.—Water-trap stomach; from an anatomic dissection.

cecum and hepatic flexure are ptosed, for it is the exception to find the colon high when the cecum is ptosed.

This paper is entirely too short to give the detailed reports of the one hundred cases studied, so we give a summary of the important facts merely.

TABLE 1.—ANALYSIS OF ONE HUNDRED CASES OF WATER-TRAP STOMACH

	No. of Cases
Males	4
Females:	
Married	47
Single	49
Between ages of 15 and 19	4
Between ages of 20 and 29	28
Between ages of 30 and 39	37
Between ages of 40 and 49	20
Between ages of 50 and 59	10
Over 60 years	1
Total	100
History of vomiting obtained in only 35 cases.	
Residue shown	55
Colon ptosed shown	84
Constipation shown	45
Operated on	18

It will be noted that the water-trap deformity is extremely rare in men. It is of paramount importance to note that child-bearing can have little or no relation to

the lesion, because half of our cases have occurred in unmarried women. Only four out of the sixteen cases especially studied were multiparas. While these patients have invariably suffered for years with symptoms erroneously diagnosed as neuralgia of the stomach, ulcer of the stomach, nervous indigestion, neurasthenia or dyspepsia, the limit of endurance has been reached only after about fifteen years of suffering. And while we have observed the water-trap deformity of the stomach in early youth and a tendency to the condition in childhood and often in infancy, as shown by roentgenograms, the usual time at which these patients present themselves for radical treatment is between the ages of 30 and 40. It is conceivable that this condition of the stomach is aggravated by faulty living, improper food and constipation, but it is more probable that the true water-trap stomach has a close analogy, for example, to inguinal hernia, which is now universally conceded to be of congenital origin with trauma superimposed. If this be true, it is at once evident that the water-trap deformity when of marked

Fig. 2.—Typical water-trap stomach. Pyloric arm 19 cm. (7½ inches).

Fig. 3.—Same case as Figure 2. Large residue. Findings confirmed two weeks later, followed by an immediate operation.

degree is as surely amenable to surgery as is an irreducible hernia. Vomiting is shown by Table 1 as infrequent, and was rarely a marked symptom. Residue in the stomach was much more frequent, and part of the symptoms could often be traced to this condition. Coloptosis was nearly always present, although about 16 per cent. showed no ptosis, and 4 per cent. showed an abnormally long colon without any ptosis. Constipation is, apparently, not so strong a factor as is generally supposed. We know that constipation is improved and, in some cases, relieved by suspension of the stomach and colon. There is ground to believe that this may in part be due to the increased amount of water turned into the colon, or to reestablishment of the normal activating processes of the peristaltic enzymes. Water has been shown, experimentally, by Draper[1] to be absorbed vicariously from the stomach under conditions of intestinal obstruction. When these stomachs are successfully operated on, they empty completely within a few hours, so that the water which previously was absorbed from the stomach now has a chance to reach the colon and thereby prevent constipation.

Furthermore, in considering the shape and position of the viscera, and in studying the symptomatology, there appeared to be a very constant drag of the ptosed, hollow viscera on the visceral nerves and blood-vessels, and this drag must be an important symptomatic factor. Another factor is the presence of a residue in the stomach long after the usual emptying time. Such a residue was demonstrated in the roentgenograms in 50 per cent. of the cases. The muscular action and the resulting emptying coefficient in practically all of these patients are below par.

Eighteen of the one hundred cases were treated by abdominal section. As these cases are of extreme interest, one case will be reported in detail:

Mrs. L. E., aged 31, nullipara, with severe progressive neurasthenia and hysteria for years, variously diagnosed as nervous indigestion, neurasthenia, hysteria, anemia, etc., when seen, had periodical attacks of vomiting occurring every two weeks. She had lost about 40 pounds and was extremely emaciated. After one severe vomiting attack, lasting two days, roentgenograms showed a very marked water-trap stomach and coloptosis. Medical treatment had absolutely no effect, and after another severe attack of vomiting with bright blood in the contents, laparotomy was performed. The condition as outlined by the roentgenograms was verified, the lesser curvature being found well below the umbilicus and the pyloric extremity fixed in normal position.

The ventral surface of the stomach was sutured to the abdominal wall and the mesentery of the transverse colon was also sutured to the abdominal wall just above the level of the umbilicus. The results have been very satisfactory. The gastric symptoms have gradually disappeared, the neurasthenia and hysteria are completely cured, the constipation

1. Draper: Personal communication.

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is relieved and there has been a gain in weight of 15 pounds. Roentgenoscopy one year after operation showed the stomach and colon in place, and to-day, two years after operation, the patient is well and without medical attendance.

In practically every case in which a thorough form of suspension technic was employed the patient has, up to date, done well. Operation is apparently the only rational treatment in certain selected cases. Gastropexy and colopexy are safe procedures. Gastro-enterostomy may cure, but is not to be preferred. Suspension will give instant and possibly permanent relief, if a careful and well-studied technic is followed. The symptoms that have been relieved are the drag, intestinal indigestion as shown by flatulence, neurasthenia and in many cases constipation. In four of these operative cases previous appendectomy had given no relief in symptoms. In the sixteen special cases, previous appendectomy had given no relief to symptoms in five cases. In nine cases the appendix was not removed during the operation, and the results have been good. In one case, with a water-trap stomach, appendectomy alone without suspension of the stomach was performed with no improvement following the operation. Later a gastro-enterostomy was performed which relieved the patient's sufferings.

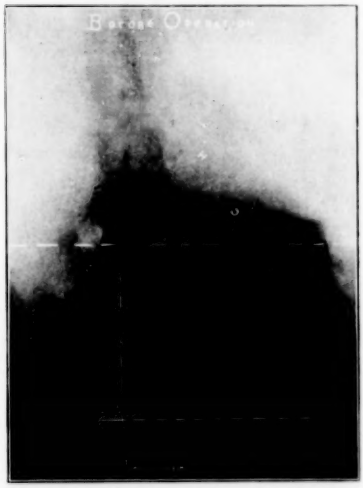

Fig. 10.—Miss M. W., aged 30. A case of well-marked water-trap stomach with residue.

Fig. 11.—Same case as Figure 10, after operation—gastropexy and colopexy. Also appendectomy and fixation of both kidneys.

MEDICAL TREATMENT

After localization of the trouble by roentgenoscopy, the examination is completed by means of analysis of gastric contents, feces and urine. After the exclusion, then, of the more serious and perhaps operative conditions of ulcer, malignancy or obstructions, and since ptosis is probably the most important factor, the first thing is to endeavor to relieve this condition. Operation is indicated in special cases, which will be described later. Nearly every patient will be benefited and sometimes entirely relieved by wearing a properly fitting abdominal belt or corset. The selection is important. When there is small discrepancy between the circumference at the waist and that at the pelvis, a corset with an abdominal flap (a surgical corset) will act well; but when the conditions are reversed, as in one patient who measured 22 inches at the waist and 34 inches around the pelvis, the corset is inefficient. In patients with this figure we have used a web abdominal support reinforced with a colon pad. This is also the type of support used for male subjects.

The corset and supports should be applied the first thing in the morning, with the patient on the back and pelvis elevated, and should be worn all through the day as long as the patient is on the feet, and removed before retiring. Another aid is to raise the foot of the bed, gradually, from 1 to 5 inches or more. This takes advantage of nearly one-third of the twenty-four hours to allow the stomach and colon to gravitate to their proper places. With a water-trap stomach, the patient should lie on the right side, with the foot of the bed slightly elevated, for about an hour after meals. This allows the stomach to empty, and it is of material aid. One patient with this condition gained 17 pounds in six months following these instructions, even without an abdominal support. The effect after a short time is to relieve the feeling of drag in the abdomen and also aids the constipation.

The treatment of the constipation is the next step. This is the most difficult procedure. Regulation of the diet by avoiding the constipating foods and giving those most likely to have a laxative effect should be carried out. All laxative drugs should be stopped, and the mo t that should be allowed is an occasional enema. The colon should at first be thoroughly emptied in the following manner: With the patient in the knee-chest position, from 6 to 8 ounces of warm cottonseed oil are given by rectum the last thing at night, and allowed to remain in the bowel over night. The next morning the

bowel is flushed out first with 2 quarts of ox-gall solution, from 2 to 4 drams to the quart, which is followed by two quarts of normal saline solution. This process is repeated in three positions: (1) on the back; (2) on the side, and (3) in the knee-chest position. The immediate results may not be much, but in a few hours there is usually a copious evacuation. In some cases, when the fecal matter is high up, 1 ounce of castor oil every night for three nights is given.

The correction of the stomach abnormality is next considered. When the hydrochloric acid content is diminished or absent, prolonged administration of dilute hydrochloric acid is often of great assistance and may alone offset the constipation. After employment of this treatment for several months the gastric juice has returned to normal.

Massage regularly applied to the colon, which has been definitely mapped out by roentgenoscopy, is very helpful. Vibration, carried out in the same manner, is even more helpful in some cases. Among the preparations given by mouth, agar-agar, powdered or granulated, has been the most successful. This should be given in teaspoonful doses three times a day, with meals. If there is stasis in the pelvic colon, this portion of the bowel should be cleaned out at regular intervals.

The question of exercise should be regulated by the amount of ptosis. In severe ptosis, overexercise, especially without abdominal support, does harm. Moderate exercise and fresh air will do much more good. Patients with ptosis in which sedentary life and nervous influences play an important part, should live where outdoor life will help to keep them in good condition.

SURGICAL TREATMENT

The indications for and against operation may be summarized as follows:

1. Care should be taken not to operate on a simple, ptosed stomach, with or without dilatation. This rule is subject to occasional modifications.

2. The typical water-trap stomach of mild degree which does not yield to medical treatment should be operated on.

3. The typical water-trap stomach of marked degree, which shows a large residue in the stomach after six hours, should be operated on when diagnosed.

CONCLUSIONS

1. Water-trap stomach is a morphologic entity which gives rise to a certain definite train of symptoms.

2. Its origin is probably embryologic and developmental.

3. It should be distinguished from a simple gastroptosis, with or without dilatation.

4. It occurs most frequently in women, but as frequently in nulliparas as in multiparas.

5. It is not infrequently wrongly diagnosed as ulcer of the stomach or duodenum.

6. Its exact diagnosis is impossible without the aid of roentgenoscopy.

7. In the mild grades medical treatment may be sufficient (analogous to the treatment of a hernia by means of a truss).

8. In severe grades operation offers a means of radical cure (analogous to the radical cure of hernia).

9. In the most severe grades operation is life-saving (analogous to the operation for strangulated hernia).

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POINTS OF VALUE IN ROENTGENOSCOPY OF THE GASTRO-INTESTINAL TRACT *

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The ordinary methods of physical examinations have never been satisfactory when employed to determine the normal and pathologic topography, conditions and activities of the gastro-intestinal tract. Percussion, on account of the abdominal gases and solids, furnishes only the crudest information and is often actually misleading. Auscultation rarely furnishes evidence indicative of specific conditions; there are no normal sounds of constancy that may act as a means of comparison. Inspection furnishes no information not better elicited by palpation, with the exception of the observation of visible peristalsis. Palpation is of much value when suitable conditions exist.

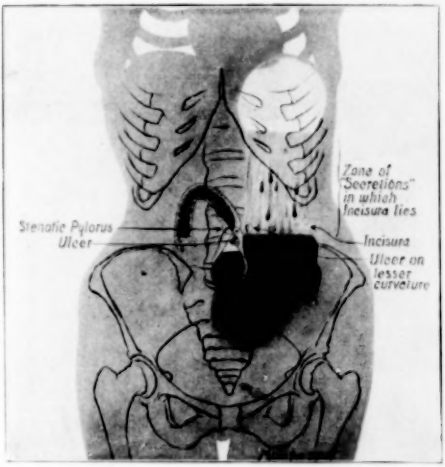

Fig. 5.—Schematic drawing from fluoroscopic tracing and roentgenograms showing a compensated dilatation due to pyloric ulcer obstruction. The stomach shows approximately normal form and position, though dilated, a true megalogastrium (compare Fig. 8). An incisura occurred on the greater curvature opposite its ulcer, and above the level of the bismuth, necessitating palpation for its (fluoroscopic) visualization (see Fig. 6). The case illustrates the value of the Roentgen-ray in establishing and locating multiple ulcers.

Into this situation is now introduced a method approaching precision for the purposes mentioned—the visualization of the gastro-intestinal tract by the Roentgen ray through the ingestion of an opaque substance, usually bismuth—a method which appeals to the most accurate of the senses, sight, and at once accomplishes much that we have been attempting to force from the ordinary methods of physical examination.

It is my object to review those points in gastro-intestinal roentgenoscopy which seem best established and of

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

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most value. The cases shown are from the Washington University Hospital and Outpatient Department. I desire to thank Drs. Dock, Murphy and Myer, from whose services the cases have been largely recruited, for permission to use them.

Roentgen examination of the esophagus gives the most accurate and constant findings of any part of the alimentary tract. Its chief value is in conditions resulting in obstruction or in those in which diverticulum is present. The point and degree of an obstruction may be located; often information is afforded as to its nature

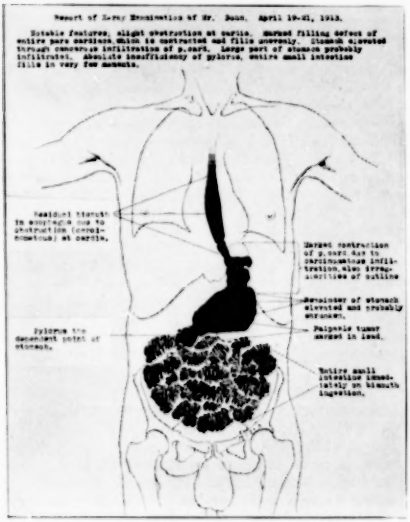
Report of X-ray Examination of Mr. Dock. April 19-21, 1913.
Notable features, slight obstruction at cardia. Marked filling defect of entire pars cardiaca, which is contracted and fills unevenly. Stomach elevated through cancerous infiltration of p.pars. Large part of stomach probably infiltrated. Absolute insufficiency of pylorus. Entire small intestine fills in very few minutes.
Persistent stricture in esophagus due to obstruction (cancerous) at cardia.
Pylorus the dependent point of stomach.
Barest contraction of p.pars due to carcinomatous infiltration, also irregularities of outline
Curvature of stomach elevated and probably adherent.
Palpable tumor merges in ileal.
Entire small intestine immediately on bismuth ingestion.

Fig. 11.—Hospital report showing reduction in size of stomach and deformity as a whole resulting from general carcinomatous infiltration. Insufficiency of the cardia (esophageal regurgitation) as determined later at necropsy and not stenosis of the cardia as indicated on the report. Also extreme insufficiency of the pylorus (entire small intestine filled almost instantaneously) are manifested. Post-mortem two months later showed small intestine canalizing a cancerous mass (colloid) and that the "palpable mass" corresponded to a mass of cancer-infiltrated omentum; note that in the figure it does not register with the stomach.

and extent by changes in the form of the esophageal lumen, by the size and form of the dilatation, or by hyperperistalsis proximal to the obstruction. In uncomplicated diverticulum, marked localized extra-esophageal retention occurs with little interruption as to the continuity of the bismuth stream through the lower esophagus and a gastric filling in approximately normal time.

It is difficult to obtain a plate that shows the diverticular efferent stream (Fig. 1). In carcinoma, characteristic findings are localized obstruction in the passage of bismuth through the esophagus, retention and dilatation above, and irregularity at the esophageal lumen at or below this point (Fig. 2). Obstruction at the cardia is manifested by gross unlocalized esophageal retention and varying grades of dilatation and hyperperistalsis. Esophageal retention due to aneurysm or pressure from other extra-esophageal cause may be detected; visualization in this way of the esophagus may be of aid in determining the topography of the impinging structure.

The Roentgen ray has radically changed our ideas with regard to the form and position of the stomach. The stomach extends far lower and is more vertical in most persons than was supposed. It is fixed only at the cardia and at the first portion of the duodenum by the gastrohepatic ligament. There is no gastroptosis; the cardia is never ptosed. In so-called gastroptosis we have a pendulosity, a sagging of the middle portion of the stomach, and a pyloroptosis dependent on atony, and a congenital or acquired lack of normal intra-abdominal or abdominal muscular support, or skeletal deformity (Fig. 3).

The stomach is an organ of the widest variation as to form and position in different persons; this is true also with regard to gastric tonus. By tonus we mean that resilience or elasticity of the living stomach under natural conditions which enables it to hold up its contents in a columnar form, one of the chief factors in giving form to the stomach. Lack of tonus, atony, is accurately shown by the Roentgen ray (Fig. 15). The Roentgen ray has shown that the stomach is no larger than its solid or liquid contents, no matter how small, and that when empty, in life under normal conditions, it is tonically contracted, probably to a tubular form. The observation of gastric peristalsis by the Roentgen ray is

Fig. 12.—A filling defect due to the small localized carcinoma immediately proximal to and slightly involving the pyloric ring. Carcinomatous degeneration of an old stenosing pyloric ulcer is suggested by the degree of dilatation (i. e., increase in the right median distance) which is greater than I have seen developed in a recent (carcinomatous) condition. Resection by Dr. N. B. Carson. Referred by Dr. Walter Fischel from the Skin and Cancer Hospital. Very slightly retouched.

a method of precision, but is a most difficult one and so far relatively unfruitful in its interpretation.

Each person possesses a stomach that fits his body; there is no normal type of stomach; I believe that the form of the stomach under normal conditions may be anticipated from an observation of the person's physique and strength. The same is true of gastric tonus and

the rate of motility or clearance. In persons of sthenic habitus the stomach is of high and more transverse position, of strong tonus and quick motility. In those of asthenic habitus, so-called congenital enteroptotics, it is low in position, vertical, weak as to tonus, and slow in motility. If, however, it adequately serves its purpose, it is normal for its owner. Views of the stomach from different angles are of use in locating pathologic lesions (Fig. 4).

In ulcer of the stomach the Roentgen ray may give characteristic findings. The proportion of cases in which this occurs is probably about 75 per cent. In the future it will be larger. These are chiefly changes in tonus with resulting anomalies of form, or primary changes in form. Ulcer of the approximately vertical portion of the stomach gives most of the definite findings.

Ulcer of this location may cause a sharply localized tonic spasm of the circular muscular fibers at its level,

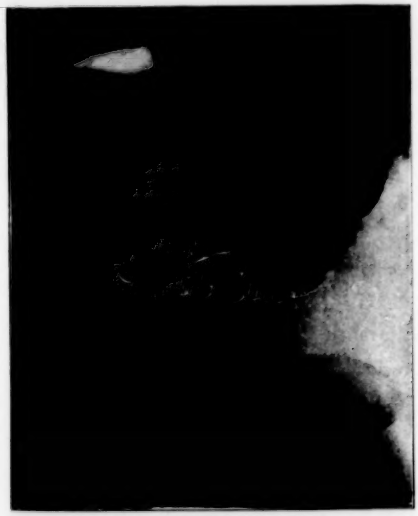

Fig. 13.—Roentgenogram showing obliteration of a large portion of the stomach as a result of massive syphilitic infiltration. Marked obstruction and retention (no evidence of latter in the plate). Complete restoration of stomach shadow after gastrojejunostomy and specific treatment occurred as shown by later examinations. Condition could be easily mistaken for carcinoma. Slightly retouched.

apparent roentgenoscopically as a localized drawing in, or gash-like opening on the greater curvature opposite the ulcer (Fig. 5). Fluoroscopic palpation may be necessary to visualize this (Fig. 6). Such incisurae constitute a valuable sign of ulcer of the pars media and pars cardiaca. They occur rarely in connection with ulcer of the pars pylorica. The same localized spasm may result in a delay in the passage of the first bismuth swallowed to the lower portions of the stomach; canalization being suddenly affected by its relaxation. If the localized spasm results in an incisura of such depth as to apparently divide the stomach, we speak of the resulting bioculation as a functional hour-glass stomach (Fig. 7).

The crater of an ulcer may be visualized by the Roentgen ray through virtue of the bismuth it contains, provided that it is situated on the periphery of the stomach shadow or that it is possible to so turn the patient as to silhouette its outline (Fig. 7). Chronic penetrating ulcer results in spectacular roentgenoscopic findings. Ulcers penetrating adjacent parts thus allow access of the gastric digestants to unprotected tissue. A cavity adventitious to the stomach may thus be excavated. Such a diverticulum will be graphically shown by the Roentgen ray as a small usually circular shadow capped by a gas-bubble without the main stomach mass. Organic hour-glass stomach can be diagnosed by the Roentgen ray. The picture is that of two atypical gastric ventricles connected by an irregular isthmus. The filling of the lower sac takes place slowly by seepage.

Ulcer of the pars pylorica seems often to result in no characteristic changes unless obstructive. If ulcer or its cicatrix obstruct the pyloric lumen a dilatation of the stomach results which the Roentgen ray graphically shows. If the obstruction be uncompensated the stomach enlarges in all its lower lateral diameters, especially in the right median distance (Fig. 8). If there be a compensatory hypertrophy of the gastric walls, the stomach seems, certainly in some cases according to my experience, to resume its normal position and form, though dilated, a true megalogastrium (Fig. 5).

Little has been learned of gastric ulcer by a study of gastric peristalsis; considerable from a study of its resultant motility. In pyloric obstruction peristalsis is periodically markedly increased, though in the lesser grades not more so than in certain non-obstructive conditions. Normally the stomach empties itself of a bismuth meal in from one and one-half to six hours, depending primarily on the type, as to physique, of the person. In asthenics this time may be extended (bismuth media). In ulcer, motility is sometimes delayed; in pyloric obstruction for obvious reasons, and in non-obstructive ulcer at times on account of true pylorospasm due to superacidity. In organic obstruction I have seen a considerable amount of bismuth in the stomach forty-five hours after ingestion. The physique of the individual must be considered in judging motility.

The Roentgen ray is of value in locating and otherwise correlating for diagnostic purposes painful and pressure sensitive points due to ulcer. Such pressure sensitive loci are due either to reflex hyperesthesia in the abdominal wall or an irritation of the parietal peritoneum through ulcer-evoked perigastritis. A reflex pressure- sensitive locus does not overlie an ulcer, or does so only as a coincident. The parietal peritoneum can localize an irritation, so clinical symptoms of perigastritis add much to the probability that a pressure-sensitive point overlies an ulcer. This is still more probable if the point registers with a site suggested by roentgenoscopy as the seat of ulcer. The great majority of pressure-sensitive points in ulcer subjects are found to fall without the shadow of the filled stomach. They are reflex, and so far of no clinical value.

The most valuable single feature of gastro-intestinal roentgenoscopy is that it offers aid in the early diagnosis of cancer of the stomach; yet it is unfortunately true here as in the clinical examination that the earlier the growth the less positive its manifestations. Gastric cancer manifests itself roughly as either an irregularity of outline, at times amounting to an obliteration of some portion of the stomach (Fig. 9); as a local excavation on the periphery of the bismuth shadow (Figs. 10 and 12), or as an irregular diminution in the size of

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the shadow as a whole (Fig. 11). It may be evinced only by a change in density of the bismuth shadow. Associated with any of these, confusing tonic spasmodic contractures may occur excited by involvement and irritation of the gastric circular muscular fibers (Fig. 10). One cannot in a few moments even suggest the possibilities. Figure 12 shows a very slight defect due to early carcinoma. The diagnosis was aided by clinical evidence of pyloric obstruction, though probably no operation would have been attempted but for the roentgenoscopy, which showed most of the gastric wall intact. A very small cancerous mass was found at the spot indicated, an ideal case for operation.

I have attempted to develop a method for correlating abdominal physical findings, such as tumefaction, pressure-sensitive loci or areas of visible peristalsis, with those of the Roentgen ray. Such clinical findings are marked in lead on the patient's body before the roentgenoscopy; especially interesting results are obtained in the case of tumefaction in or near the stomach. Figures 3, 9 and 11 illustrate the method of recording these findings for hospital histories; they are made from routine reports. Each figure is exactly that of the patient in question reduced to scale; the stomach and intestines likewise. All abdominal landmarks, physical and Roentgen ray findings bear their actual relations.

Other gastric tumors give findings similar to those of carcinoma. Figure 13 shows an obliteration of the pars media by syphilitic infiltration resulting in marked obstruction.

Ulcer of the duodenum gives less valuable Roentgen-ray evidence than does gastric ulcer. Most duodenal ulcers occur in the first portion of the duodenum, recognized roentgenoscopically as the "cap." A persistent deformity of this cap may indicate ulcer. The cap may be drawn out of position or deformed by adhesions secondary to ulcer periduodenitis. Overprompt initial gastric motility has been repeatedly mentioned as an indication of duodenal ulcer, possibly due to an interference with the tonic closure of the pyloric sphincter that exists before the onset of the later, more powerful, pyloric acid reflex. It is so far the most valuable indication of duodenal ulcer. Such hypermotility occurs, however, in other conditions, notably those causing hypo-acidity. The form of the stomach in duodenal ulcer seems different from that of gastric ulcer, being higher and more transverse. Hyperperistalsis is another usual accompaniment. A pressure-sensitive point overlying the ulcer seems more constant in duodenal than in gastric ulcer. It can only be a reflex whose registration with the ulcer region is coincident.

Stenosis of the duodenum, if distant from the pylorus, may be diagnosed by the Roentgen ray. In stenosis large rhythmical ball-like waves may be seen proximal to the point of obstruction. Figure 15 shows these due to obstruction of the terminal duodenum from involvement in an ulcer mass. Figure 16 shows apparently a dilatation of the stomach in an infant, in reality a common dilatation of duodenum and stomach, due to a congenital stenosis in the third portion of the duodenum.

The points of value with regard to Roentgen-ray examination of the jejunum and ileum are so far practically limited to lesions causing obstruction and the observation of motility. Unusual difficulty is offered by the attenuation of the bismuth column in the small bowel and the rapidity of its passage. Certain findings lead one to entertain the idea that the rate of gastric clearance controls the rate of passage through the small intestine. I have seen a case in which the entire small intestine was almost instantly canalized when extensively involved by colloid carcinoma (Fig. 11). Another in which this occurred in seven minutes as the result of an overpatent gastrojejunostomy (Fig. 17).

The field opened by the Roentgen ray for the investigation of conditions of the colon is so vast and as yet so far from exhausted that even generalities are difficult. Investigations are conducted after, or better, during the administration of a bismuth-containing enema, less desirably by the feeding test except in cases of obstruction. A bismuth enema given with an ordinary rectal tip will in a few moments canalize the entire colon, proving the high enema an absurdity. The colon, like the stomach, is subject to great anatomic variation, especially as to length and the arrangement of its various parts; the two flexures alone are fixed. So-called redundancy is probably normal for persons in whom it occurs. Figure 18 shows the cecum and proximal

Fig. 16.—Roentgenogram showing findings in a case of common dilatation of stomach and duodenum in an infant, due to a congenital obstruction in its third portion. In other plates taken later the duodenum is shown as filled, while most of the stomach is empty.

transverse colon adherent in an old appendiceal abscess mass.

The different types of constipation give interesting findings on roentgenoscopy both as to the portion of the colon in which the motor delay occurs and the associated anomalies of tonus. In spastic constipation, the hypertonicity is graphically indicated. Probably the two most valuable points so far established in Roentgen-ray examinations of the colon are that it affords a means of studying the motility of the different portions of the colon, and of determining points of obstruction, both benign and malignant.

It is self-evident that the Roentgen ray may be of great aid to the internist and surgeon in the diagnosis of gastro-intestinal affections. It will be of great value in problems of surgical interest. It is of value in

locating gastric lesions and at times establishing their nature; for instance, in determining the presence of multiple ulcers, as has occurred several times in my experience (Fig. 5). It is of great use in establishing the patency of a gastro-enterostomy opening (Fig. 17) of the pylorus after surgical treatment, or of the condition of the stomach after resection. It is of aid in locating points of intestinal obstruction and of determining their nature. The Roentgen ray should limit the number of useless exploratory laparotomies in gastric cancer in which the stomach is extensively involved, as it gives valuable information regarding the operability.

CONCLUSIONS

With considerable hesitancy I shall offer certain conclusions. The subject is new and undeveloped. There is a large amount of careful work necessary, anatomic, physiologic and clinical, before its true value can be established. I realize that our knowledge of to-day is fragmentary and will be in part the ignorance of to-morrow.

Fig. 18.—Roentgenogram showing cecum and proximal transverse colon adherent in an old appendiceal abscess mass; palpable tumor corresponding to such.

I believe gastro-intestinal roentgenoscopy of great value. Never previously in the history of medicine has a means of physical examination of so great possibilities been so suddenly developed. I should rank it only secondary to the anamnesis in the diagnosis of non-acute gastro-intestinal disease.

The method can be of greatest worth only if correlated with the clinical findings. To estimate its value alone is decidedly interesting and furnishes a check to overenthusiasm but does not indicate its true efficiency. Roentgenoscopic evidence if unsupported by clinical findings must be overpoweringly suggestive to gain recognition. This means that, at present at least, the medium can be most effective only if used conjointly by clinician and roentgenologist, and if both realize that clinical training is the essential in the correct interpretation of Roentgen-ray findings. Regarding the question of the relative value of fluoroscope and plate in gastro-intestinal roentgenoscopy, I believe that the two used conjointly more than double the value of either alone; but of the two, that the fluoroscope is of decidedly greater worth.

The need for conservatism in the interpretation of Roentgen-ray gastro-intestinal findings is very great; the personal equation is unavoidably a considerable one. Deductions should be controlled by operation or post-mortem, and in conditions from whose nature this is not possible, by irrefutable clinical evidence.

Wall Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JANEWAY, SATTERLEE AND MILLS

DR. CHEVALIER JACKSON, Pittsburgh: It would be idle to say that gastroscopy is easy to any one except the skilled esophagogastroscopist. The difficulties can be classed under two heads: first, the instrumental difficulties; second, the technical difficulties. The instrumental difficulties have been practically overcome by the work of Dr. Janeway whose gastroscope accomplishes gastroscopy in a practical manner. On the two different occasions I obtained a most beautiful view of the stomach through this instrument. The respiratory movements, the transmitted pulsatory movements and the various reflex contractions keep the gastroscopic field constantly shifting; but the man who studies the stomach in a careful way gets practical views of the interior and valuable clinical findings. The important point, however, is that the Janeway gastroscope is a practical instrument. The need now is for endoscopists who will use it. In order to overcome the technical difficulties of gastroscopy, the gastroscopist must be a mechanician. He does not need to be able to build a gastroscope, but he must be able to manage it. I know of a man who tried three different times, by esophagoscopic methods, with general anesthesia each time, to get a coin out of the esophagus near the upper orifice. Dr. Ellen J. Patterson took out that coin in a fraction of a minute without any anesthesia, general or local. The physician asked where he could get the instruments, and what they cost. He never thought of asking where he might get a few lessons on esophagogastroscopy. He thought that it was all in the instrument and that if he had had a better instrumental equipment his success would have been easy.

The second class of technical difficulties concerns the introduction of the instrument. While acquiring technical skill the operator tears up the mucosa of the pharynx, though not that of the esophagus or stomach. In regard to the results of gastroscopy: In preparing statistics for the International Medical Congress, I collected almost one thousand cases, out of which the mortality was practically nil; the various tints of the normal gastric mucosa have been discovered; diagnoses of various diseases have been made, including gastroptosis, gastrectasia, chronic gastritis, superficial erosions, round ulcer, indurated ulcer, carcinoma of the cardia, pyloris, greater curvature, lesser curvature and gastric syphilis.

I wish to ask Dr. Mills if he does not think it would be wise in mentioning cardiospasm, to classify it into hiatal esophagismus, abdominal esophagismus and cardial esophagismus. The latter, in my experience, has been exceedingly rare.

DR. JOHN W. DRAPER, New York: I have watched the development of Dr. Satterlee's and Dr. LeWald's work in regard to the water-trap stomach. It seems to me that it is conservative to look on it as a morphologic entity. You are, of course, familiar with the variations in the morphology of the stomach, as studied by Professor Kerr of Cornell University. He photographed 100 stomachs immediately after death and found that the variation was much greater than in some of those which have been shown here. Nevertheless, it does seem to me, from careful observation of this work, that the water-trap stomach is different from the ordinary dilated stomach.

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One can be pardoned for believing that the surmise is correct, which Dr. LeWald suggested to me, that the origin of the thing is somewhat similar, perhaps to the origin of inguinal hernia; that it is a congenital defect, but one which is potential, and not kinetic, until some trauma occurs. My interest has been centered in the cause of the symptoms. These stomachs give symptoms when they have residue. We do not believe that the residue itself causes the symptoms; that is, we do not believe that they are caused by the decomposition of the food, or the material that is put into the stomach at all; possibly that is a small factor; but we believe that the main factor is, in a measure, analogous to the condition which obtains after partial or complete intestinal obstruction. Perhaps that condition itself is explained by an interference with the enzyme interchange in the intestine

The improvement is extraordinary, after the water-trap stomach has been suspended, and the constipation stops at once. From the point of view of physiologic surgery I have been particularly interested in the cause of the cessation of the constipation. We know that water is vicariously absorbed by the stomach in partial or complete intestinal obstruction. It may be, therefore, that after the stomach is raised and allowed to empty in the normal period, there is less tendency to absorption of the fluids, and that, therefore, the colon gets more nearly its normal share. The other factor, however, we believe to be more patent, namely, that the activating enzymes and hormones, productive of peristalsis, are allowed to take their normal course through the canal.

DR. L. G. COLE, New York: I have seen Dr. Janeway make this examination on several occasions. The ease with which it is accomplished is surprising, and the patient suffers less discomfort than is caused by the ordinary cystoscopic examination and ureteral catheterization. It is remarkable how perfectly this definite method of viewing the stomach dovetails with the examination of the stomach by means of the Roentgen ray. If there is a weak place in the radiographic diagnosis of gastro-intestinal lesions, it concerns the cardiac end of the stomach. The lumen of this portion of the stomach is large and the peristaltic contractions broad, so that any obstruction to their passage is a defect not readily observed. Dr. Janeway's examination of this region is a complete supplement to the careful radiographic examination, and the two examinations combined offer a method of diagnosing gastro-intestinal lesions which excels all other methods.

DR. M. L. GRAVES, Galveston, Tex.: I was impressed with one of the conclusions that Dr. Mills drew, and that is, that great conservatism is necessary in interpreting these results. If those of you who are attempting to make diagnoses of gastro-intestinal conditions will follow up your gastric analyses and your radiographic pictures with exposures of stomachs in cases in which diagnosis of gastroptosis has been made by the surgeon, you will often receive a shock when the abdomen is opened. These patients present a symptom-complex similar to neurasthenia; and 80 or 90 per cent. of them are women. They are anemic, with between three and four million blood-cells, a proportional reduction of hemoglobin and a number of reflex nervous symptoms. In making these examinations I frequently distend the stomach with air, and often find the lesser curvature at or below the umbilicus and the greater curvature down toward the pelvic brim.

Then I subsequently refer these patients to the Roentgen-ray department, this particular form of gastroptosis, with an apparently dislocated stomach is at times shown, and then if the patient is operated on the stomach may not be found in the indicated location at all. The greater curvature is found at about the level of the umbilicus, perhaps just above. It is easy, in cases of chronic ulcers with adhesions or with marked obstruction to the outflow from the stomach, to show a dilated stomach or a gastroptotic stomach associated with dilatation; but these cases with the neurasthenic symptom-complex are frequently misleading. Most of the patients in whom water-trap stomachs are diagnosed will be found to have a pyloric or a duodenal fixation. These cases are rather easily diagnosed by roentgenoscopy.

DR. FENTON B. TURCK, New York: The problem brought out to-day was largely that of the congenital character of many of these dilatations of the stomach. We have here not a mere disturbance produced by some anatomic deformity, but rather some disturbance of the muscu'ature of the stomach.

By means of experiments on dogs I succeeded in producing these identical conditions of fatigue of the muscular wall, both acute and chronic. Acute fatigue was produced by placing the animal under anesthesia and distending the stomach for four or five hours, until complete dilatation was observed. We then made sections of the gastric wall and found evidences of Zenker's degeneration of fatigue. We then carried on experiments looking to the production of chronic fatigue by feeding the animals with extracts of beef and decidual bacteria, dilating the stomach by forced feeding and finally obtaining dilatation with retention, and also found in the muscle walls evidences of Zenker's degeneration of fatigue. This series of experiments I have already published.

Clinical study demonstrates that some individuals are slow to recover from fatigue of the gastric muscles. This probably accounts for most of the symptoms in this class of cases; and the evidence shows that treatment should be along the lines of rest and exercise. The rest method must include suitable diet. We find that many patients, even after operation, fail to recover permanently, in that they have a return of this symptom, and that, therefore, in addition to the purely mechanical treatment of these cases, some other method must be devised, either making operation unnecessary or as an adjunct to operation.

The method followed in our clinic is first to withdraw all food for from forty-eight to seventy-two hours; then to give food slowly at long intervals, increasing the amount and shortening the intervals gradually until finally these patients are given each day two meals of a quality suitable to pass readily through the pylorus. The food should be of such a quality that its resultant assists peristalsis and passes readily through the colon. We found many cases which were aggravated by retention of contents in the colon, toxins being produced which acted injuriously on the musculature. Hygienic treatment in addition is applied to the colon and at the same time colonic lavage, with pneumatic gymnastics of the colon (wave movements of a column of air, produced within the colon by use of a Politzer bulb); if these combined local and general treatments are simultaneously carried out, it usually renders operation unnecessary, except in cases of mechanical obstruction.

It is important to note the line of demarcation between purely mechanical obstructions and those due to weakness of the musculature, for the latter are physiologic and should receive physiologic treatment.

DR. HENRY JANEWAY, New York: It is necessary to caution against drawing a conclusion in regard to the diagnostic value of gastroscopy which is unsupported by facts. The subject is still in its infancy and is susceptible of much improvement; but this much at least may now be claimed; namely, that we have in gastroscopy a practical means of diagnosing lesions involving the vertical portion of the stomach, especially the cardiac region. This is the region of the stomach in which cancer so long remains latent. I believe that we have in gastroscopy a method of making an absolute and an early diagnosis of cancer in this region. The only question that presents itself is how early will patients complain of their symptoms. It is undoubtedly true, however, that a large majority of them do complain of symptoms early enough to enable us to arrive at a diagnosis while the lesion is still capable of being successfully eradicated.

We owe Dr. Jackson credit for the most important development of gastroscopy. He has not only been the pioneer in this field in America but has also been responsible for definite advances. I have simply followed his lead, and I wish to acknowledge my indebtedness to him for a great deal of assistance and many suggestions.

A very important consideration concerns the amount of discomfort experienced during gastroscopic examinations conducted under local anesthesia and the indications for a general anesthetic. Many gastroscopic examinations, probably 50 per cent., can be conducted under local anesthesia without causing the patient serious discomfort. As a test of the amount of

discomfort which such an examination may cause. I have been in the habit of asking a patient whether he really objected to the procedure, and whether he would be willing to undergo it again. If a patient expressed a willingness to undergo another examination, if necessary, or if he stated that he did not have an undue amount of discomfort, it was concluded that the procedure had not been particularly painful. I think that it is going to be possible, however, to utilize intratracheal anesthesia to great advantage in gastroscopy under nitrous oxid.

DR. G. REESE SATTERLEE, New York: I was much pleased to-day to see the general trend of speakers toward embryologic influences as a cause of some of these intestinal conditions. I wish to emphasize again the fact that the water-trap stomach is not an enteroptosis. This condition has not received proper consideration or diagnosis. We found in our own experience that many cases were not recognized at all, or were treated for neurasthenia, hypersensitive stomach, ulcer of the stomach, anemia or some other indefinite condition. Dr. Graves has spoken about the gastroptosis cases. We are not discussing the gastroptotic cases. The stomach that we have spoken about is not a gastroptotic stomach, although enteroptosis may coexist, but it is distinctly one due to an embryologic condition with the pyloric arm situated high. We do not want to leave the impression that these cases are all operative. The eighteen operative cases referred to were all followed very carefully with the Roentgen ray and at operation, and in every one of them the lesser curvature was below the umbilicus. Often the pancreas was visible above the lesser curvature.

Dr. Mills brought out one very important point, which also bears out the embryologic theory; he says that there is no normal stomach; that the stomach follows the shape of the body. That is what we find. We think that after a while we are going to be able to diagnose these cases without the Roentgen ray, on account of the long, narrow thorax and the narrow upper part of the abdomen.

One more point, in regard to treatment, showing what can be done in these cases medically. I had one woman with a marked water-trap stomach, a long stomach and a long pyloric arm. She was told to use an abdominal belt, to raise the foot of the bed as high as she could with comfort at night, to take advantage of the night's rest and let the stomach and the colon go up toward their proper place and to lie down on the right side of the body after a meal. I saw her about eight months afterward. She said that she did not have the money to get the belt, but that she had raised the foot of the bed and had rested regularly on her right side after a meal. When she had the symptoms of residue in the stomach which at night gave her pain and nausea, she would turn over on the right side and empty the stomach, and the pain and nausea would cease; thus, by this simple procedure, without any belt, without any operation, she had gained 18 pounds, and was doing well.

DR. L. T. LEWALD, New York: In reference to the question of operation not confirming the findings of the Roentgen-ray examination made one or two days previously, I cannot understand how such a discrepancy could occur, except that I have seen a similar apparent discrepancy when the surgeon operates on a hernia, and the hernia has been reduced by a change of position. The point is simply this: As soon as the patient assumes a horizontal position with the stomach empty it may pass to the upper part of the abdomen, where the surgeon may find it. I have seen instances of this sort in which it could be easily drawn down outside the incision, as far as the symphysis pubis, confirming the Roentgen-ray findings as determined by radiographs taken in the vertical position.

DR. R. WALTER MILLS, St. Louis: I am a firm believer in Stiller's views on the subject of the habitus. I believe that its observation constitutes the most important single sign in medicine, considering the universality of its application.

The words enteroptosis, ptosis, atony and dilatation are not used correctly. There should be a perfectly clear and definite understanding with regard to each of these terms, for they mean different conditions.

The findings at operation do not correspond with those found before. One can save himself much difficulty and humiliation by recognizing that this depends chiefly on the fact that owing to general anesthesia, or the opening of the abdomen, tonus is destroyed. I tried to emphasize the point that the stomach is an organ that has this peculiar attribute of tonus, on which under normal conditions in life its form largely depends. The organs of the cadaver, do not possess it; hence, filling the stomach in cadavers gives misleading results; it does not give us the pictures we find in life. That this same tonus is abolished at operation may be suggested by observations which lead us to conclude that the stomach in life must be contracted for one reason, because when empty it has practically no gas content; at operation this is certainly not the case. Each saccule and haustra of the intestines will show its individual gas content, if present, in the plate. I repeat that the most important thing in reaching conclusions is a clarity with regard to such points. At the basis of everything is the ability to individualize and realize that there is no normal type of stomach, but that each normal person has a stomach that fits his body, just as his nose usually fits his face.

THE NEW IMMIGRATION AS IT AFFECTS ORTHOPEDIC SURGERY *

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CHICAGO

A larger number of severe rachitis deformities of the legs have been rapidly corrected by bloodless osteoclasis in Chicago than in any half dozen other cities in the world. The records of the Chicago free orthopedic hospitals and dispensaries show that the new immigrant gives them eight times their normal ratio of rachitic deformities, four times their normal ratio of scoliotic deformities, and twice their normal ratio of tuberculous deformities. Chicago is perhaps the only city in the world having winters of ice and snow that harbors twenty thousand new emigrants from tropical or semi-tropical countries every year, and very bad rachitic deformities are almost peculiar to the children of recent immigrants from hot to cold climates.

The people from Northern Europe huddle closely. Their children double our tuberculous joint deformities. The German and Russian Jew girls are especially prone to scoliosis. Dr. Peter Roberts, in his book[1] presents a map of the United States, with a line drawn from Atlantic City to Cairo, Ill., and thence to the northwest corner of Minnesota, and says that 80 per cent. of the new immigrants remain north and east of those lines, which mark off only one-sixth the area of the country.

In the year 1911 the highest immigration point was reached with one and a quarter millions. The majority of these people flock to our large cities and settle in the poorer quarters. Their sick and injured fill our free hospitals and dispensaries. Statistics show that in the year 1911 Chicago held eighty-four thousand new immigrants from across the Atlantic Ocean, and it is estimated that one in every five or six comes from a hot country.

The records of three thousand orthopedic cases treated in Chicago hospitals and dispensaries show some interesting points as to the susceptibility of different nationalities to different deformities.

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Roberts, Peter: The New Immigration, The Macmillan Co., 1912.

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Approximately, one-third of all the cases treated were tuberculous deformities, one-third were rachitic deformities, and about one-third were congenital and acquired other than rachitic, and included the infantile paralysis deformities.

English, Irish, Scandinavians and Poles show an average of about 48 per cent., and the Germans 35 per cent. Occasional cases of badly twisted rachitic, so-called "grape-vine" legs are seen in the children of colored people from the far South. Notwithstanding the

Fig. 1 (Case 1).—Lizzie H., aged 4. Bow-legs. The extreme deformity made locomotion difficult.

Fig. 2.—Roentgenogram of Case 1 after rapid bloodless osteoclasis and overcorrection at one point only.

Fig. 3 (Case 1).—Lizzie H., six weeks after osteoclasis, and showing that overcorrection has neutralized the other outbends, producing symmetric legs.

Fig. 4 (Case 2).—Emitt F. Bow-legs, with an inward twist in the shaft of the left tibia and a toeing-in of left foot.

Fig. 5.—Roentgenogram of Case 2 after osteoclasis. Shows overcorrection at apices of deformity bends and rotation out of lower fragment of left tibia.

Fig. 6 (Case 2).—Emitt F., six weeks after rapid bloodless osteoclasis, and showing symmetric and useful legs.

My statistical findings may not be exact, but they vary only slightly from those previously presented by Dr. F. C. Test.[2] Of all the patients classed as American, 42 per cent. present tuberculous deformities, while the susceptibility of the colored race to pulmonary tuberculosis, only 17 per cent. of joint tuberculosis is shown. The Italians, Greeks, Syrians and other tropical people are almost exempt from tuberculous joint disease, with a showing of only 4 per cent. The Americans lead slightly

2. Test, F. C.: Chicago Med. Recorder, February, 1904.

in congenital deformities, with 12 per cent. The German and Russian Jewish girls develop scoliosis in large numbers. They make up 66 per cent. of all the recorded cases. The most surprising record is given by the Italians, Greeks, Syrians and other tropical people, with 80 per cent. of the rachitic deformities.

Why the new immigrant gives us nearly half of our free treated tuberculous joints, two-thirds of our scoliosis and a great majority of our bad rachitic deformities and how the emergency is met will be briefly considered.

The people from northern Europe largely seek work in our clothing and other factories and do piece work at home. These are essentially indoor people, and their children furnish a large share of the cases of tuberculous joint disease. At the Home for Destitute Crippled Children, Chicago, all the acute tuberculous joint cases are treated in an open roof-garden and the convalescent patients are sent to the Country Home, which is largely an open-air structure on a hill, twenty miles from the city. Five years ago the Home had a long line of then

conditions of climate, food and habits had the effect of producing rachitic children. Curiously enough, the children born abroad did not develop rickets. Even babies in arms, but a month old at the time of leaving their old home, escaped deformity. Only the Chicago-born children were attacked, and they suffered so excessively that at one time 80 per cent. had rickets. The rickets was of a severe type, producing bow-legs and knock-knees of great deformity, and also in many cases distortions of the chest, deformed spines, rachitic coxa vara, and curvature of the clavicles and bones of the arms. This condition prevailed for several years. Then, as these people became adapted to the climate and diet of their new home, the rickets began to abate, and in about seven years from its onset it was practically extinct in the colony.

This is a typical rachitic history that is being constantly repeated and amplified.

The unprecedented accumulation of severe rachitic deformities of the legs forced the Chicago orthopedists

Fig. 7 (Case 3).—Ada S. Knock-knees, so severe as to make locomotion difficult.

Fig. 8.—Roentgenogram of Case 3 after supracondylold bloodless osteoclasis and redressement.

Fig. 9 (Case 3).—Ada S., six weeks after bloodless osteoclasis, showing the knock-knees corrected.

incurable chronic sinuses of tuberculous joint disease. My paper[3] on "The Passing of Bismuth Paste," shows that I was the first to report any large number of old sinuses of tuberculous joint disease cured by sinus flooding.[4] The Home cases soon demonstrated the dangers of bismuth and of flooding acute sinuses.

That 66 per cent. of all the cases of scoliosis should be in Jew girls is easily explained. The Jewish mother in a strange land fears to let her young daughter out of sight. The girl sews early and late on shop work, until a vicious posture becomes fixed.

The Abbott treatment for scoliosis has been used for one year and seems to promise comparatively quick and satisfactory results.

A remarkable history is presented by a Syrian colony that was left stranded in Chicago at the close of the World's Fair in 1893. In Palestine they had known nothing of rickets. But a few months of the changed

to get away from the slow and uncertain methods of mechanical devices and repeated osteotomies. So it comes that I am able to report on nearly two thousand bad rachitis bow-legs, knock-knees and anterior bent tibias straightened by rapid osteoclasis; that is, by eight-second bloodless correction in the osteoclast, eight minutes for redressment of the deformity and application of the plaster of Paris, five weeks in plaster, and walking in six weeks on symmetric legs.

The large cities of Europe have nearly stationary inhabitants and none have the conditions that produce bad rachitic deformities. I recently spent six months in the large orthopedic clinics of England, Germany, Austria, Italy and France, and did not see altogether as many bad rachitic deformities as I might have seen at my own clinic in a week.

Professor Adolf Lorenz, of Vienna, strongly favors osteoclasis, though his osteoclast is not to be compared for accuracy with the Grattan. The Grattan osteoclast gives nearly absolute precision in the breaking-point, and

3. Blanchard, Wallace: Med. Rec., New York, May 18, 1912.
4. Blanchard, Wallace: Am. Jour. Orthop. Surg., August, 1908.

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the pressure-bar may be moved considerably in either direction from the center without affecting the rule. The term "rapid osteoclasis" is used because osteoclasis that is not rapid is always a failure and brings the osteoclast into disrepute.

Fig. 10 (Case 5).—Lucy V., with a combination of anterior bent tibias and knock-knees, making "grape-vine legs."

Fig. 11 (Case 5).—Lucy V., after rapid bloodless osteoclasis, showing symmetric legs.

After osteoclasis the bone unites firmly in half the time taken after an osteotomy. Bones bend more or less in the osteoclast before breaking, and the bending contributes toward symmetry of the leg, while osteotomy leaves only an angular correction. I have frequently demonstrated in the correction of bad anterior deformities of the tibia that cuneiform osteotomy on a child 6 to 10 years of age shortens the leg about 1 inch, while osteoclasis of a similar leg lengthens the leg about 1 inch. Two inches difference in height is of great importance to a child already dwarfed by rickets. When the tibia is to be lengthened considerably, the Achilles tendon must be tenotomized as a preliminary step, to allow it to lengthen correspondingly.

In bow-leg with several contributing curves, the apex of the most prominence is usually selected for the operative point and overcorrection is made not only sufficient to correct the curve attacked, but continued sufficiently to neutralize the two minor deformity curves, so that when the plaster of Paris sets it looks like a case of knock-knees. In the same manner, when a supracondyloid osteoclasis has been done for the correction of knock-knees, the legs are held overcorrected and when the plaster has set it looks like bow-legs. An extended experience with rapid osteoclasis has demonstrated better results in six weeks than can be usually obtained in from six months to three years by the older methods.

Osteoclasis should not be done on rachitic bone until it has eburnated. Eburnation represents entirely different characteristics from the slow process of ossification. Normal bones of young children are pliable until ossification, while rachitic bones are friable until eburnation. Eburnated bone is strong, brittle and unyielding. Eburnation may be delayed by disease or insufficient nourishment for weeks or years, but with favoring conditions of fresh air, raw and fatty foods it is quite certain to come, and when it does, it comes suddenly, perhaps in a month, and possibly in a week. Normal bone of a child of 4 years will bend a long way under pressure of the osteoclast before it goes to an osteokampsis or partial fracture, while eburnated bone breaks hard and complete like cast iron. These rules of eburnation cannot be found in either German or English literature, but they are founded on practical experience with several thousand cases.

The mild, non-rachitic bow-legs of small children that are frequently corrected in the course of normal development have nothing in common with the cases reported in this paper.

The emigrant woman has nearly twice as many children as the American-born woman, statistics showing 4.7 against 2.9 per cent. Bad rachitic deformities, tuberculous joints and scoliosis in the young of these new emigrants means a large element of helpless pauperism for the future. Congress has taken steps toward the establishment of a government station in Chicago for the temporary care and protection of immigrants. If the government and the community could be roused to the necessity of caring for the welfare of the immigrant mother for the first year or two in her new home, it would be a great uplift for the future American citizen.

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Fig. 12.—The Grattan osteoclast in position to fracture the tibia and fibula, with the pressure bar against the outside of the leg for correction of bow-leg or anterior bent tibia.

ABSTRACT OF DISCUSSION

DR. REGINALD H. SAYRE, New York: There is no question that the changes in the environment, mode of life and diet of a race have a great bearing on their nutrition. Some years ago a number of articles appeared in the medical journals

stating that rickets was unknown in Japan and that if we were all to live on rice, as the Japanese do, we should not have rickets. I notice now, however, that it is being discovered that the Japanese have rickets. How much of this is to be attributed to the great strain that has been put on that nation as the result of the war with Russia, and the consequent impoverishment and reduction in the diet of its people, may be a subject for consideration. There is no question that since immigration from Europe to this country has increased the number of cases of rickets has vastly increased. In New York it was a rare thing to find a case of rickets when I first began the practice of medicine, while at the present time deformities of all sorts caused by rickets are frequently encountered.

The Italians and negroes furnish the greatest number of cases of this disease. It seems to me that I saw a great many cases of rickets in Bologna. In fact, the orthopedic hospital there is called the Rachitic Institution, showing that rickets has furnished a large quota of the patients. I understood, however, from Dr. Blanchard's paper that there were, apparently, few cases of that kind there when he went through the institution; when I was there they had rickets of all kinds and descriptions.

Fig. 13.—The Grattan osteoclast in position to fracture the femur close to the condyles for the correction of knock-knee.

I agree with Dr. Blanchard that the Grattan instrument is a useful osteoclast. I do not understand, however, what he means by "rapid osteoclasis," because I think that, if you exert the force for more than a short time you will damage and lacerate the tissues extensively. All the bone-breaking machines with which I am familiar are based on the principle of a rapidly exerted pressure, rather than a slow, squeezing force, which would certainly do great damage.

In working close to a joint, I believe that you can do better with an osteotome than with an osteoclast, because it is necessary to get a certain amount of leverage in an osteoclast. It seems to me that it is better to make the correction at the point of the deformity rather than at an intermediate point.

DR. WALLACE BLANCHARD, Chicago: I have spoken of "rapid osteoclasis" in this paper because in my earlier observation of work done with the osteoclast, I found that the pressure was exerted slowly and that the instrument did a great deal of damage simply for that reason. Therefore, I always want to make a point of the fact that eight seconds is the longest time that pressure with an osteoclast should be exerted.

LOCAL AND SPINAL ANESTHESIA IN GYNECOLOGY AND OBSTETRICS*

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That there is in surgery a field for anesthesias other than by way of the ordinary ether drop-method is so indisputable a premise that I need not waste the few moments at my disposal with argumentation. Suffice it to say that there are no statistics in existence which give a true picture of the alleged harmlessness of the open ether-inhalation narcosis. The exact number of fatalities due to ether will never be known, nor has the rôle of ether in the causation of postoperative complications which endanger life and health of the patients ever been exhaustively considered. Few men have the courage to publish their failures, and the medical journals, as Sellheim remarks, "serve as a medium for recounting accidental success rather than the reverse."

Of the large number of new modes of anesthesia and modifications of old ones, gynecology has been particularly benefited by the two methods which I wish to discuss more in detail—local and spinal anesthesia.

We know both from clinical observations and anatomic researches that the cervix uteri is but meagerly supplied with sensory nerve-endings. Scarifications of the vaginal portions or excisions of small pieces for microscopic examination can usually be done without causing any pain. Under these circumstances it seems to be somewhat out of proportion to employ the heavy artillery of an ether-inhalation narcosis when the injection into the cervix of a small quantity of cocain, novocain, alypin or other drugs will produce an analgesia sufficient for the performance of most of the minor gynecologic operations on the uterus. There is, of course, the objection that the patient retains her consciousness and may therefore suffer a psychic trauma. This objection is largely theoretical. It is undoubtedly a difficult matter to break away from long-established habits. If local and spinal anesthesia—for the same objection has been raised against the latter method and may as well be anticipated here—if, I repeat, local and spinal anesthesia had by chance been discovered earlier than ether narcosis, we may well assume that most of us would look on a state of unconsciousness as a disquieting and questionable innovation.

We must further bear in mind that, though the patient is conscious during local or spinal anesthesia, her sensibilities are not nearly so acute as those of the operator or the audience. Any anesthesia should begin at least a day prior to the operation. Excessively nervous patients should receive bromids, valerian or other sedatives as soon as they enter the hospital. Veronal should be given on the evening preceding the operation to insure sound sleep, and hypodermic injection of morphin-atropin, morphin-scopolamin, or the like, should be administered one-half hour before the time set for operation. Before the patient enters the operating-room, the eyes should be covered with a mask, and the ears filled with cotton saturated with olive-oil. By this preparation the patient's apprehension is dulled, and, if there is no sensation of pain during the operation, there can be no psychic shock. A single trial of these methods will disarm even the most profound skeptic. After all, preparations of

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this kind should precede any anesthesia, whether local or general, and it is to the lasting merit of Crile that he has formulated in so precise and scientific a manner the principles of anoci-association toward which many of us have groped empirically.

LOCAL ANESTHESIA

The technic of local anesthesia is simple. In my first operations a solution of cocain, varying in strength from 0.25 to 0.50 per cent. was used. These cases were reported by Dr. J. S. Wolfermann.[1] Warned, however, against the toxicity of the drug by a case of marked idiosyncrasy, I have, for the past months, used novocain exclusively. This drug, combined with a very small quantity of suprarenin, is put up in tablets which are dissolved in normal saline solution so as to represent a concentration of 1.25 per cent. The total amount of solution needed hardly ever exceeds 10 c.c. A strong metal syringe with fine hypodermic needles, of the kind used in dental work, is also required. Both the solution and the syringe are sterilized by boiling.

For injection, I have frequently adopted the technic of Hertzler,[2] who injects small quantities of his solution around the periphery of the cervix and into the broad ligaments blocking the nerves before, or at their entrance into, the cervix proper. In other cases I have simply thrust the entire length of the hypodermic needle into the substance of the cervix at the four points of the compass.

There are no other departures from the usual procedure. The patient is prepared as for any vaginal operation and is then placed in lithotomy position.

The blanching of the cervix due to the action of the suprarenin, which occurs within a minute or two, indicates that analgesia is accomplished and that the operation may commence. All of the operations done in this manner consisted of, or else started with, a curettage. The cervix is slowly dilated with steel dilators, and I have repeatedly been surprised at the ease with which the internal os yielded to the dilatation. After the desired degree of dilatation is obtained, curettage is performed in approved fashion. Occasionally it has been necessary to inject an additional syringeful of the solution into the cervix a little nearer to the mucosa or to insert a narrow strip of gauze saturated wtih the novocain solution into the uterine cavity for about five minutes in order to render the curettage absolutely painless. In the majority of cases, however, these additional precautions are not needed. After the curettage, trachelorrhaphy or amputation of the cervix as indicated in a given case is performed without causing the slightest degree of pain. In like manner a pinhole os may be incised or the Dudley operation for pathologic anteflexion performed. Wound healing was perfect in all cases observed, for it must be remembered that the small amount of fluid used does not produce an infiltration which might interfere with primary union.

When subjected to thorough excochleation patients with inoperable cancer of the uterus suffer rather severely, as a rule, from the combined shock of the inevitable hemorrhage and the ether. These patients do much better under local anesthesia. Novocain has not been satisfactory in these cases. We still employ in this class of cases a cocain solution of 0.5 per cent. In one case in which a 1 per cent. solution of cocain was used, the patient complained of numbness in one leg lasting twenty-four hours. The excochleation is the first step in the acetone treatment, which in itself is quite painless if properly applied.

In a case of vesicovaginal fistula I obtained complete analgesia by injecting a 2 per cent. novocain solution through the urethra into the bladder. The escaping fluid sufficiently anesthetized the edges of the fistula to permit of a painless operation which resulted in permanent cure.

In obstetric work injection of novocain solution into the cervix is an ideal method in cases of incomplete abortion. Reduced by fever and weakened by hemorrhages, these patients often stand an ether narcosis so badly that the cleansing of the uterus of ovular remnants almost assumes the character of a major operation. I prefer the use of very large curets, both sharp and dull, too large to cause perforation; the necessary degree of dilatation of the cervix, softened, as it is, by pregnancy, is exceedingly easy and absolutely painless after injection of novocain. Since resorting to local anesthesia in these cases of abortion, we have observed a much more rapid convalescence, without having to resort to artificial stimulation either by drugs or proctoclysis.

The injection of novocain has been very helpful in cases of induction of labor by means of bags because the necessary dilatation could be secured without any discomfort. Further experiments will have to show whether or not the painfulness of the first stage of labor can be reduced by this method.

Summarizing, then, I may say that by the injection of novocain into the cervix it is possible to perform a number of minor gynecologic operations without danger and discomfort to the patient, and that in obstetric practice the proper treatment of incomplete abortion has been considerably improved by the use of local anesthesia. This method also offers a promising outlook for the management of cases at or near full term.

SPINAL ANESTHESIA

Spinal anesthesia is, at present, passing through a renaissance in the very country which gave it its birth. Not until sixteen years after Corning of New York had discovered spinal anesthesia, and only after Bier of Berlin had independently discovered the same method and Tuffier of Paris had demonstrated its wide applicability before the International Congress in 1900, was the new method adopted in this country, and our medical literature of twelve years ago reflects the wave of enthusiasm that had spread through most of our large surgical amphitheaters. Disappointments, however, which usually travel in the wake of a novel method used too enthusiastically and indiscriminately during its infancy, brought about an inevitable reaction, and spinal anesthesia was denounced as unreliable and dangerous with the same vehemence with which it had been praised before. The failures and fatalities of Jonnesco, which were so closely watched during his visit to our country, were laid at the door of the method, instead of at the door of that surgeon's personal technic. Then followed silence, and the American literature of the last six or seven years would have been sterile except for the contributions of Morton of San Francisco, who steadfastly clung to his convictions. In the most recent past, however, the papers by Allen,[4] Babcock, Bainbridge and a few others have revived the proposition.

In Germany the majority of the general surgeons rejected spinal anesthesia after Hohmeier and Koenig

1. Wolfermann, S. J.: Local Anesthesia in Minor Gynecology, Jour. Missouri Med. Assn., 1913, ix, 360.
2. Hertzler, A. E.: Local Anesthesia, monograph, 1913.

4. Allen, Freeman: Spinal Anesthesia, THE JOURNAL A. M. A., Nov. 23, 1912, p. 1843.

had collected statistics from 2,400 cases, with a large proportion of deaths and other serious complications. The gynecologists, on the other hand, not only retained the method but also perfected its technic. Sellheim,[5] in 1909, reported one thousand major gynecologic operations under spinal anesthesia with but one death and few disturbances. Kroenig,[6] in 1912, recorded 2,542 spinal anesthesias with no fatality or complication except two asphyxias, which yielded promptly to appropriate treatment. Figures of this kind can no longer be ignored or challenged because of the failures of earlier days. An impartial consideration, therefore, of the value of spinal anesthesia, particularly in our special field, is timely; but we must profit from the past and refrain from bringing discredit on the method by too extreme enthusiasm, and we should carefully weigh its limitations and realize that the success of the new method depends on close attention to even the minutest details of the technic.

To the younger generation of physicians who have grown up in the use of lumbar puncture the idea of injecting a fluid into the spinal canal is not altogether foreign. The fundamental principle of spinal anesthesia is this: to render analgesic those segments of the spinal cord which supply the innervation of the regions on which we wish to operate. If we inject an anesthetic into the space between the second and third, or the third and fourth, lumbar vertebrae, only the sacral plexus and the lower part of the lumbar plexus are affected. This means for our gynecologic work that, in the main, only the external genitals can be operated on without pain. For laparotomies or for vaginal celiotomies higher spinal segments must be anesthetized. In order to accomplish this object, we must drive the anesthetic within the spinal canal upward from the point of injection. There is a limit to this upward extension, for, if the anesthetic reaches the medulla oblongata, it will paralyze the respiratory center and the patient will cease to breathe. Spinal anesthesia has this danger in common with inhalation narcosis, for in the latter the narcotic agent enters the circulation and may, if pushed too hard, paralyze the centers for the heart and lungs.

We succeed in anesthetizing the spinal segments as required for our purposes and yet avoid affecting the medulla by observing the following precautions:

1. Only a small quantity of a highly diluted anesthetic is used.

2. The specific gravity of the anesthetizing solution must be higher than that of the cerebrospinal fluid so that it may ascend within the latter. This progress is facilitated by a slight upward current in the cerebrospinal fluid which was first demonstrated experimentally by Quincke[7] in 1872.

3. To prevent too rapid an ascent, the fluid must be injected very slowly.

4. For the same reason the patient should remain motionless in sitting posture for at least three minutes after the injection, because Straub and Gauss[8] have shown that within this period of time the greater part of the anesthetic becomes chemically bound to the substance of the spinal cord. Such an affinity between nerve substance and cocain was first observed by Mosso and Franck[9] in 1892.

5. The remainder of the anesthetic is permitted to reach higher parts of the spinal cord by changing the sitting position of the patient into the dorsal position and slowly raising the lower end of the operating-table. If this entire change is made too abruptly, the current within the cerebrospinal fluid will be increased and the anesthetizing solution may be precipitated toward the medulla. Failure to observe this caution accounts for many of the collapses which occurred so often during the experimental stage of the new method.

Some of these precautions may be merely theoretical, but the fact remains that, by observing them, the disastrous complications of former days have practically disappeared in the work of competent observers, and one can only agree with Kroenig when he demands that reports of complications due to spinal anesthesia must hereafter contain all details of the technic employed before they can be admitted to serious consideration.

After these more general remarks, the various steps of the procedure, as I practice it, may be enumerated.

At the appointed hour the patient is placed on the operating-table in a sitting posture bent forward as much as possible, and the lower part of the back is painted with iodin solution. An imaginary line connecting the crests of the iliac cones crosses the fourth spinous process which enables us to quickly locate the desired spot for injection. Many authors prefer the space between the second and third vertebrae; I have usually selected the space between the third and fourth. The spinal cord, as a rule, terminates at the upper end of the second lumbar vertebra; it may, however, extend lower down, usually in children, occasionally in women; and in such an anomaly an injury to the cord itself seems possible. Below the termination of the cord the nerve trunks, as is well known, are arranged in two large strands with a small intervening open space filled with spinal fluid. It is in this free space that we wish to inject the anesthetic. The needle is then inserted immediately below the spinous process and exactly in the median line. The injection through the skin and the strong interspinous ligament is slightly painful, and the patient must be warned to keep her position lest the needle be broken by the pressure of the spinous process during a sudden jerk. Then the needle is pushed in an inward and at the same time slightly upward direction until the arachnoidal sac is entered, which is evidenced by the escape of colorless fluid. Only a few drops of this fluid are permitted to escape. The syringe previously filled with the anesthetizing solution is at once connected with the needle and the solution diluted in the syringe by drawing the cerebrospinal fluid into it. After a preliminary trial with stovain, I now use exclusively 2 c.c. of a 10 per cent. novocain solution which contains 5 drops of a 1:1,000 solution of suprarenin.† The diluted solution, measuring in all 6 or 8 c.c., is then slowly injected into the spinal canal, the needle withdrawn, and the site of injection quickly covered with gauze or cotton and sealed with collodion. The patient remains bent forward three minutes more and is then *slowly* laid down in the dorsal position. The final disinfection of the abdomen, or in the case of vaginal operation, of the vulva and vagina, is attended to immediately, the lower end of the table is raised slightly and the operation can begin at once.

The way in which spinal anesthesia affects the patient follows a certain order. She first notices that the feet feel heavy and "sleepy." The sense of pain becomes abolished first while the sense of touch as yet persists; then

5. Sellheim, H.: History, Anatomy and Technic of Spinal Anesthesia, Med. Klin., 1910, vi.

6. Kroenig: In Doederlein and Kroenig's Operative Gynaekologie, Leipzig, 1912.

7. Quincke: Quoted from Gerstenberg, Ztschr. f. Gynäk., 1907, lix, 180.

8. Straub and Gauss: Quoted from Doederlein and Kroenig's Operative Gynaekologie, ed. 3, Leipzig, 1912.

9. Mosso and Franck: Arch. de physiol., 1892, p. 562.

† I am now injecting, with equally good results, 3 c.c. of a 5 per cent. solution of novocain with suprarenin.

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this sense, too, disappears. Gradually the recognition of differences of temperature, tendon reflexes and finally the mobility of the legs is lost. At last the peritoneum loses its sensibility. The patients breathe quietly and regularly and the intestines are not pressed out of the wound. The abdominal walls relax completely so that abdominal retractors can be used without difficulty.

The analgesia lasts, as a rule, from one to one and one-half hours; in some of my cases it has lasted as long as two and one-half hours. The sensibility of the peritoneum is the first to return, the sensibilities of the other structures following in quick succession. The analgesia lasts longest in the region of the external genitals.

Since my report of the first forty operations performed by me in the manner described I have done twenty-three additional operations under spinal anesthesia. In two other cases spinal anesthesia was attempted but not carried out, in one because only blood was drawn, in the other because of too small a quantity of spinal fluid to dilute the novocain solution.

LAPAROTOMIES

14 panhysterectomies for inflammatory disease of the adnexa (pus-tubes; tubo-ovarian abscess).
10 hysterectomies for fibroids.
2 hysterectomies for fibroids and pyosalpinx.
2 radical operations for uterine cancer.
1 operation for ovarian cancer.
1 operation for postoperative hernia.
1 operation for ectopic pregnancy (ruptured).
2 operations for fixed retroflexions with extensive adhesions.
1 operation for fixed retroflexion, tubo-ovarian cysts, hernia, and appendicitis.
1 operation for enormous hydrosalpinx and appendix.
2 operations for appendicitis.

VAGINAL OPERATIONS

5 radical hysterectomies for uterine cancer.
3 hysterectomies for fibroids.
1 vaginal cesarean section for exophthalmic goiter in pregnancy.
1 operation for complete tear in patient with exophthalmic goiter.
1 hysterectomy for prolapse.
1 Watkins-Schauta operation for cystocele.
1 Vineberg operation for retroflexion and cystocele.
1 hysterectomy for fixed retroflexion and tumor in parametrium.

In several of the vaginal cases plastic operations on cervix or perineum were done in addition. The age of the patients ranged between 17 and 64 years. Of these sixty-three operations, analgesia was altogether insufficient in one case, that of a complete tear in a woman with exophthalmic goiter. This happened to be the first case in which I attempted to operate under spinal anesthesia. I used stovain for the first (and last) time, and the solution was apparently too weak. Two years later I performed vaginal cesarean section on the same patient. This time I injected novocain and had a perfect result.

In three other cases the analgesia was imperfect.

In six of the remaining forty-seven cases a few whiffs of ether had to be given; in two cases in the beginning because of great nervous excitement of the patient; in the other four at the end of long and severe operations when the suturing of the abdominal walls was under way.

In all other operations, forty-one in number, there was a complete absence of pain. Now and then I had an assistant give a few drops of alcohol on a mask for the sake of suggestion when the patient did not fall asleep at once, but for the most part the patients were perfectly comfortable and were roused only by questions put to them in a loud voice. They paid little or no attention to any remarks made by the operator or assistants and it is altogether a mistake to speak in whispers or to maintain an unbroken silence. "The best plan," says Allen, "is to act as naturally as possible, assuming that the patient is all right and not disturbing her with questions as to her sensations or lack of them. If the patient is nervous or in a communicative mood it is a good plan to detail some agreeable nurse or assistant to sit by her and act as mental anesthetist."

The symptoms which may arise during anesthesia require particular consideration. The most dreaded complication is that of collapse, which figured so prominently in the earlier publications on spinal anesthesia. I have observed a collapse of this kind in one of my earliest cases, that of a stout and asthmatic woman with nephritis and a flabby heart in whom vaginal hysterectomy was to be performed. In this case, a typical collapse occurred when the patient was brought from the sitting into the dorsal position even before the operation had commenced. An injection of strychnin and the introduction of oxygen quickly revived her, and the operation was successfully and painlessly carried out. In another case, that of a poorly nourished prostitute whose vitality was greatly lowered, air-hunger occurred twice in the course of a tedious operation of almost two hours' duration, but it subsided without any treatment.

Vomiting took place in a large number of cases, usually when the peritoneum was incised. This vomiting varied from simple retching to emesis of copious quantities of fluid, but never persisted.

The behavior of patients during an undisturbed spinal anesthesia differs favorably from that of patients operated on under ether and gives the operator a pleasant feeling of security. After operation, this difference is even more marked. All postoperative phenomena occur, as a rule, in mitigated form, and the resisting power of the organism is not reduced by any late effects that might occur after an inhalation narcosis. The wound pain alone is not materially lessened when once the effect of spinal anesthesia has worn off. It is significant that nurses have repeatedly assured me that these patients are more easily taken care of.

The most annoying sequel to spinal anesthesia used to be an intense and intractable headache lasting for hours or days. I have observed this complication but once, in the case of vaginal hysterectomy for multiple fibroids previously referred to when spinal anesthesia was insufficient and a good deal of ether had to be added. It existed from the third to the ninth day after operation, but finally yielded to hot packs. The comparative freedom from these distressing headaches in my cases may be explained in this way: (1) The instruments for injection are boiled in plain water instead of soda solution; (2) the cerebrospinal fluid is not permitted to escape so that the pressure in the spinal canal is not lowered. Conversely, patients from whom from 6 to 10 c.c. of fluid are taken by lumbar puncture for examination always suffer from severe headaches.

Backache lasting one or two days was noted in five of my cases. In two instances the bed-side notes recorded numbness in the legs, and one patient complained of pain in the feet on the day following the operation. Usually, however, free mobility of the legs is regained within an hour or two after operation.

All these disturbances become insignificant when compared with the great advantages of spinal anesthesia. If we consider the 2,542 cases of Kroenig without a fatality, the one thousand operations of Sellheim with

but one death and numerous other large series of cases in literature with an equally low mortality, we may be tempted to conclude that spinal anesthesia should be the method of choice and in practically all major gynecologic operations. As a matter of fact, Doederlein and Kroenig draw just this conclusion. They regard as the chief advantage of spinal anesthesia over inhalation narcosis the fact that in the former we have to deal in the main with a local anesthesia in which the greater part of the poison is deposited around the site of the injection and is thus rendered harmless, while in every inhalation narcosis the poison enters the circulation and produces undesirable toxic effects on the other organs, particularly the heart and lungs. They emphasize further that postoperative cardiac disturbances and pneumonics occur far less frequently after spinal anesthesia than after inhalation narcosis. Patients with bronchial troubles or heart lesions bear a spinal anesthesia better than inhalation narcosis. The latter, it is true, is free from postoperative headaches, but since these do not materially alter the general condition of the patients and do not endanger life, they cannot be considered as an absolute contra-indication to the use of spinal anesthesia. Kyphoscoliosis, on the other hand, and other anomalies of the spinal column contra-indicate spinal anesthesia.

These authors, then, prefer spinal anesthesia over inhalation narcosis in all operations with a high mortality, such as operations for cancer and fibroid; but since there is a certain degree of risk in any laparotomy, they use spinal anesthesia in all abdominal operations in preference to inhalation narcosis.

The list of contra-indications as formulated by other authors, who, in the main, concur with Kroenig and Doederlein, also includes fever of unknown origin, sepsis, lesions of the central nervous system, syphilis, pressure-points along the spinous processes which might indicate abnormal conditions within the arachnoidal sac, such as adhesions or lack of cerebrospinal fluid, arteriosclerosis, hysteria, great nervousness and prejudice against the method.

From my own experience, limited as it is, I feel that syphilis need not exclude the use of spinal anesthesia. A large percentage of the patients operated on in the City Hospital and the Barnard Free Skin and Cancer Hospital presented strongly positive Wassermann reactions, yet had no subsequent disturbance attributable to the injection. The amount of cerebrospinal fluid was, however, so small in three of them that in two instances the attempt to inject the novocain solution was given up. It would be interesting to investigate whether or not syphilis reduces the amount of spinal fluid.

I can also assert that psychoses do not necessarily militate against the success of spinal anesthesia, for in two maniacal patients, inmates of the City Insane Asylum, the result of spinal anesthesia was perfect.

With these contra-indications in mind I have employed spinal anesthesia in all cases in which distinct cardiac or pulmonary lesions rendered inhalation narcosis plainly inadvisable. I have furthermore made use of it in patients whose general condition was so weakened either by sickness or age as to render any operation more or less hazardous and finally in complicated conditions in which a severe and tedious operation could be foreseen. These guiding principles find their expression in the list of operations given before, which comprises but few uncomplicated cases. It can thus be seen that I have put spinal anesthesia to a particularly severe test. Furthermore, the fact that only one-sixth of all the patients operated on were subjected to spinal anesthesia shows that the method has not been used indiscriminately.

The time is not yet ripe to form a definite estimate of a method that has been in practical use for less than thirteen years. Spinal anesthesia is not applicable in all cases, but neither is there any other method of anesthesia that would be universal. It would, indeed, be contrary to all our principles of individualization in medicine if we were to depend on any one mode of subjecting our patients to operation. It is true that in a certain small percentage spinal injection fails to produce the necessary analgesia. Whether this is due to the nature of the anesthetic used, faults of technic or to factors still unknown, the future will show. It may be possible to still further diminish this small percentage. There are also a number of undesirable by-effects which have steadily decreased with growing experience and will perhaps be reduced later to a negligible minimum. All these shortcomings of the method have been dwelt on in the foregoing pages in order to make an accurate presentation of the problem before us. On the other hand, spinal anesthesia presents many undeniable advantages over inhalation narcosis and, taken all in all, seems to offer an element of safety which would add greatly to the achievements of modern surgery, particularly in the field of gynecology. In view, then, of all that has been said of both local and spinal anesthesia, it is permissible to contend that he who rejects these two methods a priori deprives himself and his patients of valuable means to render his operative endeavors still more efficacious.

Metropolitan Building.

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SPINAL ANESTHESIA IN GYNECOLOGY, OBSTETRICS AND ABDOMINAL SURGERY *

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In 1885 Dr. J. Leonard Corning[1] of New York published the first article on spinal anesthesia. Not considering it feasible to introduce the solution within the arachnoid, Dr. Corning injected a solution of cocain between the spinous processes in the lower dorsal region of a man and a dog. Although in both instances there were evidences of anesthesia, and although Dr. Corning considered the feasibility of operating under this method, nearly fifteen years elapsed before August Bier at Bonn, Germany, first produced intradural anesthesia. Bier had the experiment made on himself and later injected his assistant, an example of medical heroism that recalls Sir James Y. Simpson's demonstration of the anesthetic value of chloroform. Despite the warning from Bier, the intradural injection was promptly tried in many of the clinics of the world but soon was abandoned from imperfections in the technic and disadvantages attending the use of cocain. In 1902, with the discovery of a series of synthetic alkaloid-like bodies having local analgesic properties, the method was revived and came into larger use. Of these substances,

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Corning, Leonard J.: New York Med. Journal, Oct. 3, 1885.

stovain[2], tropacocain and novocain are at present chiefly employed. Cocain has been discarded.

I have employed spinal anesthesia at the Samaritan Hospital since 1904, and our experience is based on over five thousand operations performed under spinal anesthesia by my associates and myself. Except where indicated, I shall here refer only to a personal experience of something over three thousand operations on the abdomen, pelvis and adjacent parts. As a proportion of the patients were subjected to repeated or multiple operations, the number of patients is less than the number of operations. With a similar technic, and with the position of operator and patient reversed, I myself would have accepted spinal anesthesia; and the method is one that has repeatedly been selected by my medical associates, assistants and nurses for operations on themselves or members of their families. This must be my excuse for a rather extensive employment of spinal anesthesia. Cocain, alypin and eucain lactate were used in a small series of cases, and tropacocain and novocain several hundred times each, but stovain has been chiefly employed. The action of a sufficient dose of each of these substances is so similar that a general description will suffice.

PHYSIOLOGIC ACTION

When a solution of a local anesthetic is introduced within the dura it promptly falls or ascends according as its specific gravity is greater or less than that of the cerebrospinal fluid. Cerebrospinal fluid has perhaps the most constant specific gravity of any of the liquids of the body, and in a study of over a hundred specimens taken from patients of different ages and under different conditions we found that the specific gravity almost invariably ranges between 1.0055 and 1.0065. As the slightest variation in specific gravity causes the substance introduced into the cerebrospinal fluid to rise or fall it is not practicable to prepare anesthetic solutions that will remain stationary when introduced within the dura. It is desirable, therefore, to use solutions either distinctly heavier or lighter than that of the cerebrospinal fluid. As the fluid rises or falls it comes in contact with the motor and sensory nerve roots and arrests their power of conductivity. There follow anesthesia, motor paralysis and sympathetic paralysis in the segments affected. The cord proper surrounded by the pia is only superficially influenced, and the columns within the cord may continue to functionate under spinal anesthesia. The autonomic system is practically uninfluenced. Immediately after the injection the patient usually notices a sense of paresthesia in the feet followed in a very few seconds by complete loss of sensation and almost complete loss of motion. The small muscles of the toes and the ileopsoas muscle group succumb last to the influence. As would be expected, the area of epicritic (pain) loss is much greater than the area of protopathic (touch) loss. If the analgesia is not deep the patient may therefore feel the knife although the incision is not painful. The motor paralysis and loss of motor sense are secondary to the loss of sensation and indicate the full intensity of the action of the drug, the anterior nerve roots being less sensitive to the action of the anesthetic than the posterior roots. Analgesia may be present without complete muscular relaxation, especially if the solution be weak, or a weaker drug like novocain used.

With a sufficient dosage the patient is entirely oblivious of the movement or position of the affected part. The action begins a few seconds after the injection, reaches intensity in fifteen or twenty minutes and then gradually disappears, the total duration of the analgesia varying directly with the dosage, being from fifteen to ninety minutes.

Abdomen.—Under spinal anesthesia the abdominal walls become relaxed, the abdomen more scaphoid. Abdominal breathing is largely abolished. The anal sphincters relax, and the gaseous and liquid content of the large intestine escapes. The intestinal tube contracts and shows active peristalsis. Except in certain forms of mechanical obstruction, ileus is usually promptly relieved by the injection. The influence on the intestinal tract may be explained largely by the release from intestinal inhibition. The vasomotor sympathetic nerves, the source of intestinal inhibition, are blocked, and the stimulating autonomic influence from the vagi and the stimulus from the ganglia of Auerbach are unopposed.

Operative manipulations within the abdomen are greatly facilitated by the relaxed parietes and contracted intestine, and the expulsion of gas and fecal matter before the patient leaves the operating-table is especially helpful in the forms of ileus. The stomach in some degree shares in the peristaltic stimulation. If the upper dorsal segments are involved, nausea is often noticed, due probably to cerebral anemia. The patient may be unable to vomit with the head raised, from paralysis of the abdominal walls. If present, the nausea is usually very transient. It may also result from mental impressions.

Urinary System.—While we have not made careful estimations of the urinary excretion under spinal anesthesia, it is evidently distinctly diminished as a result of lowered blood-pressure. The ureters show periodic peristaltic waves that are increased in frequency by mechanical stimulation. We have not observed incontinence of urine under spinal anesthesia. A slight or moderate degree of priapism is only occasionally observed, evidence that a marked influence on the lumbar cord is inconstant.

Circulation.—Spinal anesthesia is characterized by a fall in the blood-pressure and a slowing of the pulse that are proportionate to the height and intensity of the anesthesia. With involvement of the upper dorsal nerve roots the pulse may drop to 40 or 30 and the blood-pressure to zero at the wrists, while an involvement of only the lower spinal segments may produce only a slight reduction in the pulse-rate and blood-pressure. The action on the circulation begins soon after the motor paralysis reaches its acme or in about fifteen or twenty minutes, and gradually passes off. The influence on the circulation may be explained by the following factors:

1. The pressor influences to the cord are interrupted and there is a vasomotor palsy in the involved segments.

2. The limitation of respiratory movements reduces the normal aspirating influence on the venae cavae, and the right auricle fills slowly and therefore the other cavities of the heart fill slowly.

3. The inhibitory influence of the vagi on the heart continues and is largely unopposed.

4. The powerful normal stimulus to vigorous heart action—the *vis a fronte*, is largely lost with the fall in blood-pressure.

A blood-pressure of zero at the wrist may be harmless if the respirations are well maintained. The hypoto-

2. Stovain is named in honor of its discoverer, Fourneau, the French selecting as more euphonious the English translation of *fourneau*—a stove.

nus, however, favors cardiac arrest in certain forms of myocardial disease, as well as in thoracotomy and other operations causing sudden changes in intrathoracic tension. The depression of the heart varies directly as the height of motor paralysis. In aneurysm, threatened decompensation in valvular disease, in the excessive tension of eclampsia, in labor, nephritis and advanced arteriosclerosis the vasorelaxation of spinal anesthesia may be protective. Hemorrhage from divided vessels and from the open uterine sinuses is greatly reduced under spinal anesthesia, while there is no increased tendency to reactionary hemorrhage. No other anesthetic produces such a complete vasomotor relaxation, and for this reason spinal anesthesia should be used with care or avoided in conditions of marked hypotension, while it is indicated in forms of hypertension. During severe shock, spinal anesthesia should not be employed. It accentuates preexisting shock although it prevents to a remarkable degree the production of shock by operative measures carried out under its influence. With most other anesthetics the shock of a prolonged operation is reinforced by the progressive toxemia of the anesthetic. With spinal anesthesia the emergence of the nerve roots from the anesthesia as the operation proceeds usually results in the patient's leaving the operating-table in better condition than he was during the early stages of the operation.

The best antidote for the fall of blood-pressure is the intravenous injection of physiologic salt solution containing epinephrin. From 2 to 10 minims of epinephrin should be added to each funnel (6 ounces) of the saline solution, the flow being interrupted as soon as the pulse returns to the wrist. The amount of epinephrin to be used depends on the effect produced; in some instances 2 minims is excessive; in others 20 minims are hardly sufficient. For patients in extremis it is wise to fasten the transfusion needle in a vein before starting the operation as complete cessation of the circulation for over seven minutes seems to be incompatible with life. In certain instances cardiac massage, best carried out through the diaphragm, must also be used.

Respiration.—The respiratory movements diminish in amplitude according to the height of paralysis of the respiratory muscles. With paralysis of the lower dorsal segments the respirations become diaphragmatic in type but are without the coordinate movements of the abdominal walls. As the thoracic walls relax the patient sometimes complains of a sense of weight or oppression on the chest. The skin, although pale is usually dry and of fair color. If, however, the fourth cervical segments supplying the phrenics be influenced, although the patient may continue to make ineffectual respiratory movements with the accessory respiratory muscles of the neck, asphyxia rapidly develops and the patient will die unless efficient efforts at artificial respiration be instituted. If a solution of stovain be applied to the floor of the fourth ventricle of a dog the respirations are almost instantly arrested but the animal may eventually recover, provided artificial respiratory movements be continued until the centers emerge from the influence of the drug. A similar condition occurs in the human being in anesthesia of the cervical segments, and one should not hesitate to continue artificial respiration for forty minutes or even longer. The respirations under spinal anesthesia are usually slow, and rather shallow. Their small amplitude is favorable to the performance of abdominal operations. Cyanosis is ominous. Respiratory movements are best gaged by a wisp of cotton fastened to the tip of the patient's nose, and this is the best indicator of the efficiency of artificial respiratory measures. If artificial respiration is necessary it can conveniently be carried out by rhythmic compression of the thorax or by forced artificial respiration. A simple emergency method of forced artificial respiration is by intermittently blowing through a soft rubber hose applied over a tracheotomy tube. Resuscitation by the intratracheal insufflation of Meltzer is less convenient and in my experience, less positive. It is absolutely essential that the upper respiratory passages are kept open.

Uterus.—Uterine contractions continue under the anesthetic, but being without the normal aid of the voluntary expulsive forces, they are, as a rule, inefficient even when supplemented by the associated relaxation of the pelvic outlet. The blood-pressure in the uterine sinuses is greatly reduced. Hemorrhage during delivery or during curettment for miscarriage is distinctly less than that seen under chloroform or ether anesthesia. When emptied, the uterus contracts promptly, and I know of no instance of secondary hemorrhage after delivery.

Skin.—Except with the relaxation of high spinal anesthesia, the surface of the body is pale or of normal color, and dry. The suffusion of the skin, drenching sweats and heat radiation of ether are absent.

It is evident that spinal anesthesia has a different physiologic action than that of any other anesthetic. It is of chief value when its application is based on its peculiar physiologic action and when it is used in conditions that render the employment of other anesthetics dangerous.

PERSONAL EXPERIENCE OF THE AUTHOR

In detail, my personal experience is as follows:

TABLE 1.—OPERATIONS ON THE UPPER ABDOMEN

	No. Cases
Stomach:	
Complete gastrectomy for cancer	3
Partial gastrectomy for cancer	19
Resection for ulcer	7
Occlusion perforated ulcer	18
Gastrostomy	6
Gastro-enterostomy	19
Gastroplication or gastrorrhaphy	14
Exploration for cancer, and miscellaneous	51
	128
Liver, Gall-Bladder and Ducts:	
Cholecystectomy	49
Cholecystostomy	68
Choledochotomy, choledochoduodenostomy	6
Operations on liver for rupture, abscess, tumor hydatid cyst and ptosis	31
Miscellaneous	19
	173
Acute Pancreatitis with Fat Necrosis:	
Cholecystostomy and drainage	5
Spleen:	
Wound	2
Splenectomy for acute leukemia (13½ pounds), massive infarction, Banti's disease	5
Omentum and Mesentery:	
Resection, excision of lymph-nodes, chylous cyst, etc.	19
Total operations on the upper abdomen	332

It is more difficult to produce efficient spinal anesthesia in the upper abdominal segments without depression and the analgesia is associated with certain disadvantages not present when only the lower abdominal segments are involved. The anesthesia usually involves the lower thorax and often reaches the level of the third or fourth rib. This interferes in part with the respiratory movements and increases the fall in blood-pressure, and if sufficiently high may cause nausea and symptoms of shock; while if the analgesia be low, traction on the stomach and manipulations near

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the diaphragm produce discomfort and nausea. It is desirable in many of these patients, therefore, to produce unconsciousness by the preliminary injection of narcotics, but in the weak and debilitated the use of narcotics increases the danger of respiratory failure. The conjoint use of a small quantity of ether at times is less objectionable. In about 80 per cent. of my cases narcotics have been used and in perhaps 5 or 10 per cent. the action of spinal anesthesia has been supplemented on the operating-table by the use of ether. Usually from ½ to 2 ounces of ether will be sufficient for a fairly prolonged operation.

TABLE 2.—OPERATIONS ON THE LOWER ABDOMEN

	No. Cases
Appendix	
Catarrhal, chronic or incidental	610
Gangrenous, perforative with abscess or peritonitis	215
Appendicostomy	4
	829
Intestine:	
Resection (from 3 inches to 16½ feet)	21
Suture or occlusion	17
Occlusion of perforated typhoid ulcer	14
Miscellaneous, including colostomy, fecal fistulas, adhesions, bands, kinks, diverticuli, ileus, abscess, separation of adhesions, etc.	77
	129
Herniotomies and Operations on Abdominal Wall:	
Inguinal	365
Femoral	15
Strangulated	29
Incisural, umbilical, ventral	57
Lipectomies (from ½ to 14½ pounds)	30
Miscellaneous operations	6
	502
Total operations on the lower abdomen	1,460

Spinal anesthesia has its chief value in operations involving the segments of the lower abdomen and pelvis. In these regions it is not difficult to produce relatively safe and complete analgesia with muscular relaxation. Particularly is it valuable in acute peritoneal infections as from the appendix. In these patients, beyond the possible passage of a stomach-tube, and the sterilization of the skin, no preoperative preparation is required. If meteorism or inflammatory ileus exists the intestinal tract is usually emptied on the operating-table and the patient returns to bed with a scaphoid abdomen. The muscular relaxation and collapse of the distended bowel enable the surgeon to work with greater facility and less peritoneal exposure, handling or traumatism than under conventional methods of anesthesia. A shorter incision may be made and the anesthetic does not add to the patient's intoxication or interfere with normal elimination.

With one exception, during the past nine years, I have selected spinal anesthesia for all abdominal operations on the toxic, septic or desperately sick, and I have withheld operation only from those who were admitted to the hospital in an unquestioned dying condition. In a few instances I have even given spinal anesthesia to the moribund. One such patient, a man aged about 70, with a perforated typhoid ulcer of twenty-four hours' duration, was brought to the hospital cold, cyanotic and nearly pulseless, and died during the operation. Although in other hopeless cases of peritonitis the patients have withstood the depression of spinal anesthesia, and although the operations have taught valuable but terrible lessons to attending physicians and students, I shall not dispute those who consider it better to permit these unfortunate patients to die under the Ochsner treatment. The lowest mortality I have obtained in operating on the appendix, 1.8 per cent., in a series of 220 consecutive and unselected operations performed promptly after admission to the hospital, irrespective of the degree or duration of any associated peritonitis, has been under spinal anesthesia.

Three patients with apparent mechanical intestinal obstruction of some days' duration, that had resisted many forms of treatment, were relieved by spinal anesthesia alone while the patients were on the operating-table and before the incision was made.

I have had little trouble from postoperative tympany, and recall no operation required for postoperative ileus, and it is evident that postoperative intestinal disturbances are not increased by the use of spinal anesthesia.

TABLE 3.—PELVIC AND VAGINAL OPERATIONS

	No. Cases
Abdominal Operations on Pelvic Organs:	
Hysterectomy and hysteromyomectomy	61
Myomectomy	8
Ovariotomy	7
Operations on tubes and ovaries	148
Suspension operations	54
Miscellaneous	29
Total	307
Vaginal Operations involving the Peritoneal Cavity:	
Vaginal hysterectomy	105
Vaginal myomectomy	1
Vaginal ovariotomy	7
Vaginal appendectomy	7
Vaginal resection or removal of tubes and ovaries	57
Vaginal anterorrhaphy	3
Culdesac drainage	57
Miscellaneous	17
Total	254

As with operations on the lower abdomen, operations on the pelvic organs are very conveniently carried out under spinal anesthesias.

Spinal anesthesia should be employed with caution in the neurotic, especially those with pelvic symptoms. Frequently they will attribute all postoperative headaches, backaches or pain in the extremities to the intradural injection. At times, under the advice of solicitous friends or unwise medical advisers they become convinced that a hopeless spinal degeneration is developing. It is fortunate if the patients come under the care of a trained neurologist.

TABLE 4.—OPERATIONS ON THE KIDNEY AND BLADDER

	No. Cases
Kidney:	
Nephro-ureterectomy	2
Nephrectomy	10
Nephrotomy or nephrolithotomy	33
Resection of kidney	3
Decapsulation	29
Nephropexy	20
Ureterotomy	2
Perinephritic abscess drained	4
Separation or transplantation of ureter to appendix, intestine, bladder	4
	107
Operations on the bladder	54
Total operations on kidney and bladder	161

Spinal anesthesia seems to have a special value in certain operations on the kidney and bladder. I have not hesitated to operate on both kidneys simultaneously under spinal anesthesia or to do a nephrolithotomy on the residual kidney after the removal of the opposite organ. In one woman aged about 60 the residual kidney had been opened three times previously for recurrent calculi. In a second case, although the residual kidney had been subjected to repeated operations and drained for eighteen months, the patient later married and successfully passed through several pregnancies. From decapsulation performed under spinal anesthesia on patients with advanced forms of nephritis with or without marked anasarcas, I have observed no untoward effects. The anesthetic seems also of especial value in operations on the bladder, especially in removal or resection for tumor, and for prostatectomy.

TABLE 5.—PLASTIC OPERATIONS, AND OPERATIONS ON RECTUM AND GENITALS

Plastic operations and curettements	287
Operations on rectum and anus	150
Operations on external genitals	106

Spinal anesthesia gives very satisfactory relaxation of the perineal muscles. The relaxation of the anal sphincter facilitates operations on the lower bowel. The anal sphincters are among the last to relax under ether and the first to relax under spinal anesthesia. As in other parts of the body, the lowered blood-pressure reduces the hemorrhage. Retention of urine after perineal and rectal operations seems to occur after spinal anesthesia with about the same incidence as it does after the employment of ether. I do not believe that the intradural injection is a causal factor in this condition. As indicating the innocuousness of repeated intradural injections, one patient has been subjected to spinal anesthesia not less than eleven times for repeated plastic operations for hypospadias without evidence of cord or root injury.

TABLE 6.—OBSTETRIC OPERATIONS

	No. Cases
Version	6
Induced labor	1
Manual extraction of 4 months	1
Dilatation and curettement	214
Forceps deliveries	36
Vaginal drainage for pelvic infection	17
Ectopic pregnancies	16
Cesarean section—ruptured uterus	1
Placenta praevia	8
Podalic version	3
Total	303

For a report of 173 of the cases given in Table 6 I am indebted to Dr. J. C. Applegate, obstetrician to the Samaritan Hospital. Dr. Applegate considered the condition of 60 per cent. of these patients such as to render the use of ether or chloroform undesirable. A number of the patients were exsanguinated. In the case of cesarean section the uterus had ruptured sixteen hours previous to the operation and the fetus was in the abdominal cavity. The patient was brought about 20 miles to the hospital and was pulseless. Although the patient seemed to be moribund when the operation was started, she made a satisfactory recovery. The heart action was maintained during the operation by the intravenous use of epinephrinized salt solution. Dr. Applegate reports no diminution of the uterine contractions, and no post-partum hemorrhage or other ill-effects after spinal anesthesia in his service.

I am also indebted to Dr. William A. Steel of the surgical service of the Samaritan Hospital for 109 of the cases given in Table 6, many of them treated in his private practice under the disadvantages incident to a poor home equipment. Dr. Steel notes that the uterine contractions were not abolished, that hemorrhage was markedly lessened, that the placenta may be expelled spontaneously, and that the after-coming head in breech or version operations must be extracted rapidly or else the lower uterine segment may contract on the neck.

In a personal communication Dr. James P. Marsh of Troy, N. Y., reports four successive and successful cesarean sections for eclampsia. The reduction of blood-pressure and the saving of time render the method of value.

In version and threatened uterine rupture the method may be used. Uterine inertia is probably less frequent after spinal anesthesia than after ether.

The danger of pregnancy to the woman with pulmonary tuberculosis is from the violent physical strain of labor. I am indebted to Dr. H. R. M. Landis for the suggestion that child-bearing may be rendered relatively safe to the tuberculous by an instrumental delivery under spinal anesthesia. In one primipara with a large pulmonary cavity, this method was employed with entire satisfaction. The patient had no labor pains or secondary ill effects, and a living child was easily extracted under spinal anesthesia. In pregnancy associated with serious heart disease the method also enables one to obviate all cardiac strain.

In fourteen of the cases in Table 6 I operated for ectopic pregnancy by a free incision through the vaginal culdesac. The affected tube was grasped, pulled down with the vagina, clamped or ligated and excised. A gauze drain was introduced from the vagina into the pelvis and the patient at once returned to bed. This simple operation requires but little time and was found useful in the "tragic" type of ruptured tubal pregnancy. There was no mortality in this small series. Spinal anesthesia has the advantage in obstetric practice of producing no ill effects on the child. In private obstetric practice, Dr. Steel considers that post-spinal cephalalgia is unusually frequent and severe. At present, however, I am inclined to consider postoperative headache and abducens palsy as evidence of the use of deteriorated or imperfectly sterilized solution. Solutions causing headache should promptly be discarded.

TABLE 7.—SOLUTIONS EMPLOYED IN SPINAL ANESTHESIA

Light Solutions:		
A. Stovain	0.08	gm.
Lactic acid	0.04	c.c.
Absolute alcohol	0.2	c.c.
Distilled water	1.8	c.c.
B. Tropacocain	0.1	gm.
Absolute alcohol	0.2	c.c.
Distilled water	1.8	c.c.
C. Novocain	0.16	gm.
Absolute alcohol	0.2	c.c.
Distilled water	1.8	c.c.
Heavy Solution:		
D. Stovain	0.08	gm.
Lactic acid	0.04	c.c.
Milk-sugar	0.10	gm.
Distilled water, to make	2.	c.c.

These solutions are conveniently kept in ampules, each containing 2 c.c. of solution. They should be prepared under aseptic precautions and sterilized by the intermittent method and at temperatures not above 65 C. (149 F). The dose, for the adult, of each solution, is from 1 to 1.5 c.c., the larger dose being employed only for robust adults. Of these solutions that of stovain is the most powerful anesthetic and motor paralyzant, most toxic, most actively hemolytic, and the strongest protoplasmic poison. If not acidulated it is precipitated by the alkaline cerebrospinal fluid. It gives excellent anesthesia. Tropacocain is somewhat less active as an anesthetic, and is considered by some to have fewer untoward effects. I have found, however, that each anesthetic when in solution may show variations in analgesic power and in toxic action, possibly due to imperfect sterility, to by-products not eliminated in the manufacture, or as a result of the decomposing effects of heat. Novocain is much weaker than stovain, but is not precipitated by cerebrospinal fluid, and even in a 10 per cent. solution is not actively hemolytic. The clinical efficacy and clinical toxicity of novocain I would estimate as about one-half that of stovain. The loss of epicritic sense is less under novocain. At present I employ solution A. Solution D is used in the rarer instances in which it is desired to keep the head elevated during the operation. Solutions extemporized from powders or tablets I have abandoned for fear of infection. Except to alter the specific gravity

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there is no advantage in adding epinephrin, strychnin, glucose, gelatin or similar substances in the anesthetic solution. The repeated production of spinal anesthesia in the same person is apparently no more harmful than a single injection. My experience indicates that if spinal anesthesia is not properly employed by one possessing sufficient clinical skill, it may have a large mortality. It should not be employed by those who have not developed trustworthy aseptic technic or who have not carefully mastered the physiology of the method.*

CONCLUSIONS

Spinal anesthesia is not a universal anesthetic, although it produces the greatest degree of muscle relaxation with the least protoplasmic disturbance. Even if skilfully administered it is probably more dangerous than a transient and light narcosis under ether or nitrous oxid-oxygen, but safer than a prolonged narcosis with complete relaxation under ether or nitrous oxid-oxygen.

Spinal anesthesia causes an earlier and more marked fall in blood-pressure than other anesthetics, with a slowing and weakening of the heart action, and should therefore be used with caution or avoided in conditions of marked hypotension of the circulatory system.

In certain cases in which alarming symptoms follow the inhalation of ether, spinal anesthesia may be used with success. Spinal anesthesia requires a more highly developed technic and a greater degree of watchful supervision than does the use of ether.

Certain sequelae such as headache and abducens palsy indicate that faulty solutions have been injected; late spinal cord degenerations probably do not occur in man; but various cord and nerve lesions may be simulated in the neurotic or hysteric and attributed to the injection.

In abdominal surgery it may be selected when there is an acute pulmonary, severe cardiac, vascular or renal disease, especially when associated with a high blood-pressure. In conditions of acute peritoneal sepsis it is valuable. Against spastic or paralytic ileus it is a most potent agent and its use will often render operative intervention needless.

In malignant disease and for operations on large tumors, while not free from danger, it is at times safer than ether. It does not eliminate the danger of cardiac failure in operations for uterine fibroids.

In obstetrics it facilitates operative delivery, lessens hemorrhage and reduces cardiac and pulmonary strain. In pulmonary tuberculosis it largely relieves the patient of the great danger of labor, the accentuation of the disease. In heart disease it relieves the patient of any strain on the heart tending to decompensation. For operative delivery, during eclampsia it is especially desirable, giving relaxation and lowered blood-pressure without interference with elimination. In extra-uterine pregnancy it is efficient. Spinal anesthesia is relatively safer in the young and robust than in the enfeebled and toxic.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GELLHORN AND BABCOCK

DR. A. E. HERTZLER, Kansas City, Mo.: First, I wish to criticize Dr. Gellhorn's method of preparation of the patient. My experience is that the less you say to the patient the better. I should think that plugging the ears with cotton would excite rather than allay apprehension. My practice is to ask the patient whether local or general anesthesia is desired. When local anesthesia is selected I take the patient into my confidence and state the stages of the operation offering the greatest difficulties, and keep her informed as to the progress of the operation. The question of local anesthesia is largely one of industry on the part of the operator. Every operation can be done under local anesthesia if the operator has sufficient industry to carry out the procedure.

I desire to emphasize the point made by Dr. Babcock on the need of differentiation between the kinds of sensation that the patient has. It may be a sensation of touch and the operator may think it is a complaint of pain. Only by keeping in touch with the patient by questioning her can this point be determined. Restlessness on the part of the patient is often due to the operator's elbow resting on the patient's chest in abdominal work, or perhaps to the fact that some instrument is allowed to press on the region of hyperesthesia.

DR. FRED J. TAUSSIG, St. Louis: The work that is being done in the large clinics abroad and in this country will before long give us the exact indications and contra-indications for spinal anesthesia. Contrary to Dr. Babcock's views, I believe that in certain cases of myocardial disease I have had better results from spinal anesthesia than from any form of inhalation anesthesia. In the field of the radical abdominal operation for uterine cancer spinal anesthesia seems to be especially valuable. Any one who has operated on a considerable number of patients with this disease, doing the complete operation, knows what a severe strain it is on the individual. A very considerable reduction of about 30 per cent. in the primary mortality has been brought about by several operators with large experience, since in all of their operations they used spinal anesthesia in place of a general inhalation anesthesia.

I have encountered numerous failures when I have attempted to use the infiltration anesthesia spoken of by Dr. Gellhorn in a cervix that was still hard, as in cases of dysmenorrhea in multiparas in which dilatation and curettage were indicated. Here my percentage of failures was very great. In cases of recent abortion, however, with retained placental tissue or with hypertrophied endometrium, we can readily substitute infiltration anesthesia for general anesthesia. I have met practically no failures and believe with Dr. Gellhorn that recent abortion cases are much less liable to hemorrhage when such an anesthetic is used than when a general anesthetic is employed.

* For untoward effects see: Babcock, The Danger and Disadvantages of Spinal Anesthesia, Proceedings of American Therapeutic Society, 1913.

FURTHER POINTS ON THE STERILITY OF WOMEN *

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The treatment of sterility has long been one of the comparative failures of gynecology; and one of the most striking points of the case as I have seen them in practice has been the frequency with which women who have been in fact sterile to husbands who are known to have normal spermatozoa have, nevertheless, been pronounced normal even by practitioners of recognized authority. I have, moreover, seen this repeatedly, even when in my opinion a fully adequate cause for sterility was at once apparent in the genitals and when treatment of this condition resulted in prompt fertility. The frequent occurrence of such failures as these must evidently have a reason, which I believe to be that symptoms of ill health of sufficient degree to demand treatment are

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

always dependent on the existence of gross pathologic conditions which we have all long been trained to perceive, but that sterility, on the other hand, is usually dependent on mere perversions of function which are not readily perceptible anatomically, and can therefore be detected only by observation of their results as shown by an altered performance of the daily physiologic functions of the organs.

The use of the terms "gross pathology" and "perverted physiology," though strictly in accordance with modern thought, is so far new in this connection as perhaps to demand a definition of the sense in which they are used. Of course in an ultimate analysis any alteration of function is usually due to a variation in the anatomic state of the organ which performs it, but even important functional variations are sometimes so slight as to be unproductive of anatomic variations which are perceptible by the ordinary clinical observations; hence the distinction between a grossly perceptible lesion and one which can readily be appreciated only by its results seems practically helpful, and the expressions "gross pathology" and "perverted physiology" are used here in this sense.

The perversions of physiology which cause sterility in women may be classified under two heads:

1. Conditions of the mucous membranes of the genital tract which may be either small or great in degree, but which even if small lead to alterations of the secretions of these mucous membranes which are destructive to the continued life of the ova or spermatozoa which have been deposited in them, or which annul the effective motility of the spermatozoon in its efforts to reach the ovum.

2. Conditions in the ovaries which inhibit the formation of the ovum or prevent its release at maturity.

A paper which is limited to twenty minutes can evidently attempt no more than a summary of the main features of a large subject, and as I have recently published a much more extended paper on this subject,[1] I propose here to limit myself to such a brief recapitulation of the points there made as may render intelligible some further considerations which were omitted.

THE SECRETIONS

From the time the spermatozoa are deposited in the vagina and the ovum is released from the follicle to the time of their conjugation their only relation to the woman who is their host is that they live in her secretions. The primary condition for fertility is therefore that these secretions should be sufficiently normal to permit the continued existence of the sexual elements until their conjugation is effected.

The alterations of the secretions which destroy the life of the spermatozoa, or perhaps of the ova, are of two kinds: (1) changes in the secretions due to pathologic conditions of the mucous membrane which secrete them, and (2) mere fermentative or other chemical changes in the secretion poured forth by a normal mucous membrane.[2]

Either class of changes may be present either with or without detectible gross pathology and consequent symptomatology, but in either case the mechanism which produces sterility is the destruction of the spermatozoa or ovum by a hostile secretion, and it is therefore only by close observation of the secretions that we can determine the cause and consequent treatment of a given sterility. Further, when gross pathologies are present they be no more than indirectly unrelated to the sterility; and their treatment, operative or otherwise, has then no effect on the sterility, unless the conditions which cause this are treated concomitantly.

The genital canal may be anatomically distinguished by the character of its epithelium into four sections, the vagina, cervix, uterus and tubes. The secretions of any one or all of these divisions of the canal may be so altered as to be destructive to the spermatozoa, and may be so altered either chemically or mechanically. The secretion of any one of these divisions may be abnormal without prejudice to the secretions which originate above it, but an alteration of an upper secretion almost necessarily implies a similar abnormality of the secretions below it and into which it is discharged. In the management of a given case the conditions of each of these divisions must be observed separately and often from the necessities of the case seriatim; they should consequently be so described; and it further seems conducive to clearness to discuss the conditions of each section first without complicating them by questions of treatment, which may then be taken up by themselves.

The Vagina.—The ideal, normal vaginal secretion is that of the healthy virgin, in whom the vaginal secretion is clear and translucent; barely mucilaginous, and in quantity just sufficient to keep the vagina moist and lubricated, and at the same time to permit of disappearance of the secretion by evaporation as it reaches the surface, without the appearance of moisture in quantity noticeable by the woman.

In the patent vagina, which alone concerns our present subject, the secretion is, however, almost never so absolutely normal as this. The vagina of the virgin may be sterile, but so soon as coitus has become habitual the vaginal secretion always contains bacteria of many kinds, which have normally, however, been decreased in virulence and rendered innocuous to their hostess either by the moderate normal acidity of the secretion or by its other chemical characteristics.

The most common alterations of the vaginal secretion are chemical in the form of overacidity, biologic in the presence of active pus cells, and mechanical in great profuseness. The importance of such hostile conditions of the vaginal secretions is susceptible of experimental demonstration by means of various modifications of normal semen on the field of the microscope and direct observation of the effect of these modifications on the living spermatozoa. The majority of such studies have been concerned with chemical modifications of the semen itself, but there have been in addition a few reports of the effect on the semen of specimens of normal and abnormal vaginal secretions. It has further been occasionally possible to combine the necessary examination of the spermatozoa of the husband with the submission of his spermatozoa to contact with the vaginal secretion in question under the microscope, though from the condition of the case the opportunity of so treating fresh spermatozoa will occur but seldom. I had this opportunity once, and although in that case the vaginal secretion was not the only one affected, the prompt disappearance of motion in the spermatozoa as they came into contact with it was quite strong evidence that the existing alteration of the vaginal secretion was in that case quite enough to have caused sterility by itself.

The importance of the vaginal condition must, however, be estimated differently in the nulliparae who form the great majority of the sterility cases and in the multi-

1. Reynolds, Edward: The Theory and Practice of the Treatment of Sterility in Women, THE JOURNAL A. M. A., Jan. 11, 1913, p. 93.

2. Such a change may, of course, in time react on the condition of the mucous membrane itself

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parae who occasionally consult us for the so-called one-child sterility. . . . In multiparae with lacerated cervices and consequent eversion of a considerable portion of the cervical mucous membrane, it is easy to demonstrate that such a condition as, for instance, the existence of a hyperacidity of the vaginal secretion, is comparatively unimportant. The reaction of the vaginal walls and of the vaginal surfaces of the cervix may in such cases be shown by test paper to be actively acid, while the same paper applied to the cervical mucous membrane when it is thrown into eversion by a speculum will show a neutral or faintly alkaline reaction. With this surface freely exposed to immediate contact with the spermatozoa during the mechanical distention of the vagina in coitus, and remembering that the deposition of only a few spermatozoa on its surface may be sufficient for fertilization, it becomes evident that with such multiparae the hostile condition of the vaginal secretion is of little importance; on the other hand, in a nullipara with the same excessively acid vaginal secretion, but with a pinhole os, the acid reaction of the vaginal surface of the cervix, extending, as it does, to the very edge of the os, makes the chance of the entrance of the spermatozoon into the safety of the alkaline reaction before contact with the acid vaginal secretion so extremely small as to constitute practical sterility from the condition of the vaginal secretion alone. The same considerations probably apply with equal force to the other possible alterations of the vaginal secretion, though with them the actual demonstration is less easy than with the mere change of reaction.

The Cervix.—The importance of a differentiation between the condition of the cervix and that of the cavity of the uterine body may seem at first sight doubtful; but the existence of a differentiated cervix and cervical cavity is in its full development peculiar to the human race and forms an element which deserves consideration in all comparisons of the physiology of impregnation as between man and the quadrupeds. . . .

The normal mixed secretion of the uterine and cervical cavities is, as it emerges from the os, clear, limpid, translucent and of about the consistency of the white of an absolutely fresh egg. The normal quantity is just that which is sufficient to keep up a constant but almost imperceptible slow flow from the os. Excessive quantity, cloudiness, turbidity and either a mucopurulent or seropurulent appearance are alterations which usually affect both cavities, that is, both the uterine and cervical. Inspissation and stringiness of a portion of the secretion, while the rest remains abundant and substantially normal, is usually an alteration of the cervical condition alone.

The most common causes of alteration of the cervical secretion alone are retention and consequent inspissation of the secretion behind a pinhole os, in which condition the cervical cavity is frequently considerably dilated, thus forming a retention cavity, hypertrophy of the cervical mucous membrane, often semipolypoid in nature, and localized dilatation of cervical glands, with the resultant escape of small quantities of thick stringy secretion. It is probable that the occurrence of inspissation is usually dependent on contamination of the secretions, at least by some of the bacteria of fermentation.

The Uterine Cavity.—The shape and direction of the cervix and shape and situation of the os are always points of importance, because the extremely common underdevelopment of this portion of the organ usually impose some degree of obstruction to the exit of the uterine secretion, and it is as true in this organ as in other mucous membranes that there can be no complete recovery from chronic inflammation without free drainage. It is only necessary to refer to the experience of the rhinologists in the nose and urologists in the male urethra to recall to your memory the extreme persistence of chronic alterations in secretions behind even partial obstruction. So long as the uterine secretion is thickened, clouded, mucopurulent or seropurulent there will be no pregnancy.[3]

The Fallopian Tubes.—It has not generally been realized that the fallopian tubes have a normal secretion, but they are lined with a mucous membrane and, moreover, with a moist and ciliated epithelium, the cilia of which row toward the uterus; it follows of necessity that there is a tubal secretion in continual drainage through the uterus. We are ignorant of the nature of this secretion, though it is probable that it is clear, limpid and scanty in amount; we do know that when the tube is infected its fimbriated extremity closes by adhesion and that it becomes distended with an altered secretion, the character of which varies with the individual infection.

Repeated observations in the course of abdominal operations made since I have been especially interested in sterility have convinced me that in addition to these gross salpingites with which everybody is familiar there are many minor alterations of the tubes, chronic congestions, often with thickening, which have not led to closure of the fimbriated extremity, though such would probably follow in time. Just as the distinct salpingites usually follow an endometritis, so these minor alterations of the tubes have seemed to me to be always associated with similar conditions in the uterine body, and from results I have inferred that they tend to disappear with the latter under the influence of complete drainage, in connection, of course, with depletion and other minor treatment. Remembering that the tubes are morphologically merely a portion of the uterus it would, moreover, seem that these things must necessarily be so.

It is to be remembered, however, that the tubes are double and it might be supposed that with one tube normal the condition of the other was comparatively unimportant; but we must also remember the principle already laid down that alteration of an upper secretion always implies alteration of all the secretions below it, and in accordance with this principle there is considerable evidence to show that with one tube normal and the other pathologic, the spermatozoa may be prevented from reaching the secretions of the normal tube by inability to pass through the abnormal secretions of the uterine cavity which are perpetuated by the continued existence of the other (diseased) tube above. When the abnormality of the tube is slight the diagnosis of such a one-tube sterility is often difficult, but may usually be established with a fair degree of probability by sufficiently careful examination under anesthesia and a comparison of the results of this examination with the tenderness noted without anesthesia and the probabilities derived from the clinical history. Close study of such cases, however, is well worth while, since after proper treatment of the abnormal condition below and the removal of the diseased tube their prognosis is extremely good.

3. It may be remarked in passing and without entering as yet on the subject of treatment, that for the majority of these conditions the routine expedient of dilatation and curettage is usually totally inefficient to the production of fertility, and the sooner the profession as a whole learns this the better it will be for their patients.

THE OVARIES

The existence of an ovarian infertility has long been accepted as a possible though vague explanation of some otherwise inexplicable sterilities; but descriptions of the actual conditions which produce ovarian infertility and study of the possibilities of remedying it are conspicuously absent from medical literature.

The alterations of the ovaries which are most commonly present in sterility cases are slight to moderate enlargements, caused either by the presence of numerous small to medium-sized retention cysts, or by the presence of unduly large, persistent and frequently cystic corpora lutea.

Multiple retention cysts may be distinguished from the normal presence of one (or very occasionally more than one) mature normal follicle by their persistence, undue size or large number. They are usually accompanied by undue thickness of the capsule and are usually bilateral.[4] They are familiar objects to every abdominal surgeon. They are not usually considered of importance. In the course of a long series of conservative operations on enlarged ovaries for other reasons their relation to sterility had not occurred to me until a review of all my cases of conservative surgery of the ovaries led me to notice the considerable frequency with which this work was followed by pregnancy in women who had previously been sterile for a number of years. Since then I have watched this point in every case in which I have opened the abdomen and have seen but one case of bilateral enlargement of the ovaries by multiple retention cysts in a fertile woman. The addition of the conservative surgery of the ovaries to my armamentarium for the relief of sterility in carefully selected cases naturally succeeded and was at once followed by a marked increase in the list of successes.

The assertion that bilateral enlargement of the ovaries by multiple retention cysts bears a causative relation to sterility is at present incapable of either proof or disproof other than by clinical results, the histologic evidence which I had hoped by this time to be able to bring forward having been interrupted by the accidental destruction of a considerable number of specimens which had been carefully preserved for this purpose. I hope in the future to be able to produce such histologic evidence in proof or disproof of my present belief.

The importance of persistent corpora lutea as a cause of sterility is more easily established. Even the possibility of the existence of a pathologically persistent corpus luteum in the human ovary is a somewhat new suggestion, though scattered reports of such cases have appeared from time to time for many years;[5] but it is a quite common surgical experience in the resection of ovaries to find apparently unduly large, and sometimes even cystic corpora in ovaries, some of which have been known to be enlarged for many months, or even years; and the whole trend of modern study warrants the view which some of the best authorities affirm as positively established that the presence of a corpus in the ovaries inhibits further ovulation. There is, moreover, interesting clinical evidence of their importance. Among my records of sterilities which have been successfully treated I find three cases in which a stationary enlargement of one ovary had been noted from periods of several months and in which the enlargement of the ovary was found at operation to be caused by a large and more or less cystic corpus. I find four other cases in which a similar condition was found at operation but in which the patient had been under observation for but a short time before the operation was undertaken. In each of these seven cases the enlarged and apparently persistent corpus was removed from the ovary and its bed closed over, and in every one of the seven cases the operation was followed by the prompt appearance of pregnancy in a previously sterile woman. Further, a similar though less surgical method of removing the persistent corpus has been classical among veterinary surgeons in the treatment of sterile cows for many years and is stated to be very successful.[6]

The subject of the differential diagnosis between these several forms of moderate enlargement of the ovaries is one which I have been for some time studying and which I hope can yet be rendered probable by the differential symptomatology, but on which I am not yet ready to speak. It is of practical interest in connection with both of these alterations of the ovaries that they are seldom if ever seen in cases which are wholly free from alterations in the lower portions of the genital tract. I have so far seen no such case. It follows that the routine submission of sterile women to abdominal section without careful, exhaustive study of the other conditions is totally unjustifiable and would result in much unnecessary operating. The case as a whole must be carefully investigated first; even then the propriety of instituting an abdominal operation for sterility alone must rest on the conditions of the individual case. It is probably justifiable only when considerations connected with the health of the patient warrant a section independently, or in carefully selected cases after the lower alterations from the normal have been remedied by treatment without avail, and when the intense desire of the patient and her husband for children renders them fully ready to assent. It should certainly not be attempted for sterility alone by the unskilled operator.

METHODS OF TREATMENT

A complete discussion of the technical details of the treatment which has been found in my experience the most successful in the management of sterility dependent on (*a*) alterations of the secretions, or (*b*) ovarian alteration, would form a complicated subject which would necessarily run into great length; moreover, so much of the choice of detail is as yet necessarily empirical, that it would be difficult to put it on paper in clear form. The general principles which govern it can, however, be so stated. Their application to an individual case must be governed by experience as influenced by study of that case.

Treatment of the Altered Vaginal Secretions.—The alterations of the vaginal secretion are apparently always due to infection, with the exception of profuseness which is usually the result of a general pelvic congestion or of those hyperacidoses which are a part of general constitutional hyperacidosis. Treatment naturally follows along the lines indicated by these three etiologies.

The cause of a pelvic congestion must be ascertained and remedied. . . .

General hyperacidosis demands the appropriate general medical treatment.

The results of infection vary in accordance with the bacteriology from mere fermentations of the secretion up to the gross pathologic conditions. . . .

4. When strictly unilateral, they are probably not necessarily causative of sterility.

5. Hirst, B. C.: The Corpus Luteum of Pregnancy in Non-Pregnant Women, Med. News, April 5, 1890.

6. Williams, W. L.: Veterinary Obstetrics, Including the Diseases of Breeding Animals, Ithaca, 1909.

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The Cervical Secretion.—When the vaginal secretion has been disposed of the condition of the cervix must be investigated. This should be carried out first by simple observation of the character of the cervical secretion, and of its quantity as observed for a considerable length of time through a speculum, and by expression of the retained cervical secretion by compression of the cervix; and next by examination of the shape and dimensions of the cervical cavity with a sound and by hooking out any thickened secretion from along its walls with the sound or wire loop. . . .

The Uterine Secretion.—The only two methods of treatment of the uterine mucous membrane which need be mentioned are curettage and disinfection, and for safety and effectiveness both of these are dependent on the coincident institution of free uterine drainage. No disinfection of the uterine cavity is safe unless it is done in the presence of the complete distention and free drainage which is usually attained only after an operative opening of the canal; it is then harmless. Curettage is usually also necessary whenever the uterine mucous membrane is the seat of definite alterations; but no one who has had the experience of removing uteri which have just been curetted can have failed to be impressed with great skepticism as to the results of curettage as ordinarily performed. When a uterus is so inspected it is surprising to see how much of the mucous membrane has been left untouched even by a very careful curettage, and it is, I believe, usually impossible to perform even an approximately thorough curettage without the use of several curets, or of one which can be adapted to every part of the uterine cavity. . . .

Such permanent free drainage is almost never effected by mere dilatation. It can be established only by careful study of the causes of defective drainage in the individual case and the adoption of appropriate plastic work to remedy its cause. Successful determination of these abnormalities often demands very close study; for instance, careful exploration of the region of the internal os after the cervix has been opened by a discission, with a sound which has had the extreme tip bent to an acute angle, often reveals unexpected angulations of the canal, or the existence of bars or prominences in the mucous membrane on the anterior or posterior wall, or both. These phenomena are quite preventive of free drainage and furnish the best of reasons for the persistence of abnormal secretions, yet they are quite unknown to those who merely practice dilatation of the os. All of these conditions are most frequent when the cervix is in anteflexion and underdeveloped. These conditions may demand bilateral division of the cervix and its subsequent repair, the posterior discission and release of forward fixation of the cervix which I have described,[7] or other plastics, or even operations from above; the choice must be left to the plastic sense of the individual surgeon.

After the performance of any of these plastics the uterus should be curetted and the curettage should usually be supplemented by thorough, deep disinfection of the uterine mucous membrane as a part of the operation, and while the canal is still in acute operative distention and consequently under freer drainage than it will have at any other time.

Tubal Sterilities.—The tubes and ovaries are not appropriate for minor treatment other than as the drainage and disinfection of the uterine cavity may usually be relied on as aids to the subsidence of the minor tubal alterations described before, and as the institution of permanent free drainage from the uterus may often be depended on to relieve the minor abnormalities of both the tubes and ovaries. Both of these organs if directly attacked at all must be attacked by major operations; and as the technic of their reparative surgery is again a subject which must be left to the plastic instinct of the individual operator, which is extensive, and on which I have given my views elsewhere,[8] I shall omit further reference to it here.

At the bottom of the whole subject of treatment lies the principle that even the ovarian infertilities are almost invariably associated with physiologically obstructive conditions in the genital canal, minor or major, and that the patency of a canal is only the patency of its most obstructed point; moreover, it must be remembered that I am speaking here not of that simple phenomenon, mere mechanical patency, but of that much more complicated and delicate matter, the physiologic patency, which permits the passage of a living ovum and of a living and actively motile spermatozoon to their point of conjugation, and finally to the implantation of a fertilized ovum. Perhaps the most important and certainly the most generally overlooked point in the whole subject is that the destruction of this delicate physiologic patency is frequently effected by alterations which are so minute in degree or limited in area as to escape diagnosis under merely routine observation. . . .

Accurate, minutely accurate, diagnosis; the limitation of treatment to the areas affected without unnecessary invasions of normal structures above the affected areas; the attainment of complete drainage by appropriately planned and executed plastic work in combination with deep mechanical or disinfective treatment of the affected areas and of them only; and the recognition and treatment of ovarian infertility, when it exists, are the essential principles in accordance with which all the details must be planned.

The treatment of sterility is frequently operative and as such demands operative skill and readiness to assume a not infrequently considerable operative responsibility; but it also involves a minuteness of diagnosis and a patience in treatment which must be exercised sometimes before operation, sometimes independently of operation, sometimes after operation. These facts in connection with the exquisite balance which is necessary to the continued life of the spermatozoon and ovum within the genitals; to success in their search for each other, and to that conjugation and attachment to the decidua which means fertility, all combine to render this subject an intricate one, and to make its treatment one which is almost a specialty within a specialty; moreover, much more study is needed before its details can be placed within the category of accepted text-book knowledge, but that with patience, intelligence, and minute observation, treatment may be made satisfactory and successful is already assured.

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ABSTRACT OF DISCUSSION

DR. ROBERT T. FRANK, New York: Dr. Reynolds has modified our conception of the factors which enter into the production of sterility largely because he has not limited himself to the usual course of study in this subject. He has not confined his attention to the gross mechanical lesions, but has concentrated his efforts in trying to elucidate the "physiologic per-

7. Reynolds, Edward: Anteflexion of the Cervix and Spasm of the Uterine Ligaments in Relation to Retroversion, Dysmenorrhea and Sterility, Surg., Gynec. and Obst., July, 1911, p. 17.

8. Reynolds, Edward: The Ultimate Results of the Conservative Surgery of the Ovaries, Surg., Gynec. and Obst., March, 1912, p. 255.

versions," as he happily terms them. Dr. Reynolds apparently lays a great deal of stress on the external secretions of the genital tract. Perhaps he is right. The factors which enter into the production of these sterilities are so complex that it is necessary to divide sterility into several classes. I agree with Dr. Reynolds that gross mechanical lesions play a subsidiary rôle. This is shown by the frequency of conception in the presence of vaginal septa and in the presence of fibroids, some of them obstructing the uterine canal. This is shown by conceptions even in the presence of every obstacle that Nature or art can place in its way. Conception has been reported through a vesicovaginal uterine fistula. In my opinion the condition of disturbed function, on which Dr. Reynolds laid so much stress, is really the factor we must study in order to advance in our treatment of sterility. The uterus is often at fault, but not as was formerly considered, not from an inflammatory lesion or chronic endometritis, for instance. In order that conception may successfully take place it is necessary that the ova grow up, ripen and be expelled and received into the tube. Then the corpus luteum must form in the ruptured follicle. Unless this last has occurred the uterine mucous membrane will not be sensitized for the reception of the ovum. This sensitization is necessary in order that the ovum may take root. The corpus luteum is the factor that produces this reaction. Dr. Reynolds, therefore, justly laid great stress on the persistence of the corpus luteum, because a persistent corpus luteum, among animals, has been shown to cause sterility by preventing further growth of all ova which have attained a good size in the ovary. Unfortunately, I think that in the human being we cannot consider the matter so simple as this, for, were the persistent corpus luteum a regular cause of sterility, these cases should always be accompanied by amenorrhea, which is by no means the case. The problem is therefore extremely complicated. The most necessary thing for us to determine, either through animal experimentation or from human observation, is in what case the condition of sterility is due to the uterus, in what case due to the ovary, and particularly whether or not menstruation and ovulation coincide. In this last matter, which has been so long sought for by gynecologists, lies the crux of the question.

DR. LAURA BRANSON, Iowa City, Iowa: I have long been interested in the subject of sterility of women, particularly in that form dependent on ovarian conditions. I was much pleased to hear Dr. Reynolds point out the possibility of the ovary having much to do with the condition of sterility. There is but little literature on this subject. In an April number of THE JOURNAL a report gives the following conclusions from a biologic point of view: (1) In vertebrates, the female possesses all sex qualities; (2) The habitat of these sex qualities in the ovary; (3) These sex qualities are developed by the internal ovarian secretion. The biologic conclusions also point to the fact that the ovum is developed by this internal ovarian secretion and that it inhibits or prohibits the menstrual function. Right along this line, let me say that I am more than pleased at the conservative manner in which surgery of the ovaries is at present conducted, because now while biology and physiology are pointing in the direction of study of the ovaries we shall have material left *in situ* on which to base these investigations and experimentations, whereas a few years ago ovaries were removed which might have been saved to perform the functions for which they were intended.

DR. CHARLES S. BACON, Chicago: There is one feature of this subject which I think may be mentioned—the influence of the corpus luteum in sensitizing the decidua. This might possibly furnish a clue to treatment. One might use the products of the luteal body of animals or the corpus sensitized from the uterus. I have employed it in some instances in which, apparently, I obtained results. This gives us something for further study.

In addition, there is the question, How often do we have, not a very early abortion, but an incomplete nidation, resulting in an abortion? This, of course, is part of the sterility problem, and here also the early abortion may be due to the lack of the corpus luteum secretion. Here, too, possibly there may be some help from the early diagnosis of pregnancy. The diagnosis is most important in women who have irregular menstruation. It is of the utmost importance to determine whether we have to do with early abortion. If the newer methods of diagnosis will help us in this, they will help in solving a practical problem.

DR. J. H. JACOBSON, Toledo, Ohio: We must be certain that there are no mechanical disturbances present before we suspect that the secretions are at fault. In short, we must demonstrate positively that there is a patent genital canal extending from the Graafian follicle to the vulva. If you will recall the anatomy of the fallopian tube, you will remember the differences in structure of the tube at its inner and outer end. The lumen at the outer end of the tube is large and there is comparatively little muscular tissue; at the inner end of the tube there is much wall and practically no lumen. The patency of the inner end of the tube is difficult to determine, and it is this particular part of the genital tract that I believe is often the seat of obstruction, the result of inflammatory changes at this point. For some time past, from specimens removed at operation, we have tried to determine the patency of the uterine end of the fallopian tube. We have found that in most cases in which there has been a previous salpingitis, even though of mild character, we could hardly ever get injected fluid through into the uterine cavity. I feel that in the surgical treatment of sterility this form of obstruction is probably the most important lesion to determine. The operation of hysterotomy, as advocated by Deaver, will find a field of application for this class of patients.

DR. EDWIN REYNOLDS, Boston: Dr. Jacobson brings out a point. We are dealing with something more than a question of mechanical patency. We are dealing with a question of a very delicate physiologic patency. Just as the strength of a chain is the strength of its weakest link, so the patency of a canal is the patency of its most obstructed portion. Now, the point which I wish especially to drive home, if I can, is that, while it is ridiculous to say that there is anything short of an absolute obstruction which can prevent the passage of the ovum, nevertheless, if there is a relative mechanical obstacle, a lack of mechanical patency, there will be a lack of physiologic patency from the inspissated, thickened and altered secretions behind that mechanical impatency, or partial impatency.

FUNCTIONAL TEST (PHENOLSULPHONEPHTHALEIN) OF THE KIDNEY IN SCARLET FEVER *

M. FISHBEIN, M.D.
CHICAGO

Rowntree and Geraghty[1] in 1910 introduced phenolsulphonephthalein tests as a method of determining the functional ability of the kidney. They found on subcutaneous injection of the dye that in normal persons from 40 to 60 per cent. is excreted after one hour and from 20 to 25 per cent. after two hours. They found that in acute nephritis the activity of the kidneys may fluctuate greatly in twenty-four to forty-eight hours. In parenchymatous nephritis there is a marked decrease in the amount of drug excreted and in chronic interstitial nephritis a low output was found in all cases. Later they[2] showed that the test is of value in that by showing a marked decrease in renal function, it indicates impending uremia when other signs are lacking. They conclude that intramuscular injections are better than subcutaneous. This work has been confirmed by Boyd,[3]

* From the Durand Hospital of the Memorial Institute for Infectious Diseases, Chicago.

1. Rowntree, L. G., and Geraghty, J. T.: Jour. Pharm. and Exper. Therap., July, 1910; abstr., THE JOURNAL A. M. A., Aug. 20, 1910, p. 720.

2. Geraghty, J. T., and Rowntree, L. G.: The Phenolsulphonephthalein Test for Estimating Renal Function, THE JOURNAL A. M. A., Sept. 2, 1911, p. 811.

3. Boyd, Montague L.: Phenolsulphonephthalein and Functional Tests of the Kidneys, THE JOURNAL A. M. A., March 2, 1912, p. 620.

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who examined a large series of cases, the test proving of especial value in cardiorenal disease, indicating to what extent impaired renal function was responsible for the symptoms.

Erne,[4] using intramuscular injection, found that from 47 to 68 per cent. of the dye was excreted after one hour, and from 74 to 85 per cent. after two hours. Phenolsulphonephthalein tests in a large series of cases showed a lowered excretion when renal lesions existed. The occurrence of albumin in the urine and the excretion of phenolsulphonephthalein did not run parallel. The severity of the objective and subjective symptoms was in each instance in accord with the indications of the results of the test.

The tests have now been made on many hundred cases and in over forty, at least, post-mortem examinations have confirmed the presence of conditions suggested by the test-results.

In the cases here reported the dye was injected intramuscularly. The bladder was emptied and specimens of urine collected after one hour and after two hours. The colorimeter used was that described by Cabot and Young,[5] which consists of a series of twenty tubes, containing 5, 10, 15, etc., per cent. of the dye.

The following protocols will indicate the results obtained:

REPORT OF CASES

CASE 34.—Girl, aged 8; previous illness, measles, pertussis, varicella; developed a quite severe scarlet fever April 12; highest temperature 103.6; fever only four days; severe nonsuppurative adenitis from April 16 to April 27; albuminuria from May 6 to May 25.

TABLE 1.—URINE, CASE 34

Date	Amount, c.c.	Sp. Gr.	Albumin	Reaction	Diacetic Acid	Acetone	Ammonia	Microscopic
4/19	1450	1.002	0	acid	0	0	.7308	0
5/6	....	1.012	++	acid	0	0	....	0
5/8	1420	1.004	trace	acid	0	0	.1512	0
5/25	1450	1.010	trace	acid	0	0	.4698	0
5/27	....	1.018	0	acid	0	0	....	0

Phenolsulphonephthalein test, May 22, five weeks after onset: first hour, 38 per cent.; second hour, 18 per cent.; total, 56 per cent.

CASE 46.—Man, aged 26; previous illnesses, measles, varicella, typhoid; very mild scarlet fever beginning May 1; fever up to to 102 for three days; no complications; no albuminuria.

TABLE 2.—URINE, CASE 46

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction	Diacetic Acid	Acetone	Ammonia	Microscopic
5/23	3100	1.003	0	weak acid	0	0	.7254	0

Phenolsulphonephthalein test, May 22, three weeks after onset: first hour, 35 per cent.; second hour, 18 per cent.; total, 55 per cent.

CASE 40.—Man, aged 25; mild scarlet fever beginning April 19; fever up to 102 for eleven days; delirious April 26 to April 29; during delirium patient received spirits of mindererus, ½ ounce every four hours, and enemas of normal salt solution containing 10 grains of sodium bicarbonate every four hours; there was continuous marked improvement.

TABLE 3.—URINE, CASE 40

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction	Diacetic Acid	Acetone	Ammonia	Microscopic
4/26	....	1.014	0	acid	+—+	+	....	0
4/28	1100	1.014	0	acid	++	+	1.376	0
4/30	4500	1.002	0	acid	0	0	.729	0
5/23	2900	1.003	0	acid	0	0	.417	*

* Hyaline casts.

Phenolsulphonephthalein tests, May 22, five weeks after onset: first hour, 25 per cent.; second hour, 30 per cent.; total, 55 per cent.

CASE 45.—Girl, aged 22; previous illnesses, measles, pertussis, pneumonia, appendicitis (no operation); moderately severe scarlet fever beginning April 28; fever up to 103 for twelve days; severe polyarthritis; no albuminuria; severe headaches during fourth week.

TABLE 4.—URINE, CASE 45

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction	Diacetic Acid	Acetone	Ammonia	Microscopic
5/25	2000	1.002	0	acid	trace	0	.81	†
5/30	2000	1.004	0	acid	0	0	.45	†

† Few hyaline casts.

Phenolsulphonephthalein tests, May 24, four weeks after onset: first hour, 8 per cent.; second hour, 18 per cent.; total, 26 per cent. May 27, four weeks after onset: first hour, 20 per cent.; second hour, 33 per cent.; total, 53 per cent.

CASE 53.—Man, aged 25; no previous illnesses; mild scarlet fever with marked scarlet exanthem beginning May 12; fever up to 100.6 for five days; developed albuminuria May 27 which persisted until August 1.

TABLE 5.—URINE, CASE 53

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction	Diacetic Acid	Acetone	Ammonia	Microscopic
5/17	....	1.005	0	acid	trace	0	1.0	0
5/25	2200	1.006	0	acid	0	0	.71	0
5/30	4000	1.012	+	acid	0	0	.60	†
6/2	4400	1.001	++	acid	0	0	.55	‡
6/21	....	1.018	1.75 Esbach	acid	0	0	..	‡‡
6/31	1325	1.013	5	acid	0	0	..	§

† Hyaline casts.
‡ Hyaline and granular casts.
§ Hyaline, granular and epithelial casts.

Phenolsulphonephthalein tests, May 22, ten days after onset: first hour, 48 per cent.; second hour, 16 per cent.; total, 64 per cent. May 27, two weeks after onset: first hour, 53 per cent.; second hour, 32 per cent.; total, 85 per cent.

CASE 95.—Boy, aged 12; previous illnesses, measles pertussis; rather mild scarlet fever beginning June 19; fever up to 102 for twelve days. On July 11, a trace of albumin appeared in the urine. On the morning of July 12, a slight puffiness below the eyes was noted. The patient complained of severe headache. By evening the whole face appeared swollen. The urine was extremely scant. On the morning of the 14th the face and eyes were markedly puffy, headache was severe and the patient vomited. On the 13th one-half ounce of magnesium sulphate was given. On the 14th, an ounce of magnesium sulphate and a hot pack were given. The patient was also given 4 ounces of Fischer's isotonic enema (consisting of 10 gm. of sodium carbonate and 7 gm. of sodium chlorid in a liter of water), by the drop method every four hours. The vomiting and headache continued. On the 15th the treatment continued as

4. Erne: München. med. Wchnschr., 1913, xl, 510.
5. Cabot and Young: Boston Med. and Surg. Jour., 1911, clxv, 549.

before. June 16, the patient was given a hot pack morning and evening and the hypertonic enema containing 14 gm. of sodium chlorid and 10 gm. of sodium carbonate was substituted for the isotonic solution. At 7 a. m. he became comatose and had irregular movements of the hands and legs; on being placed in a hot pack the symptoms abated. At 3 p. m. another attack occurred which was also relieved by hot pack. At this time sodium bicarbonate, 10 grains every four hours and sodium citrate 15 grains every four hours were ordered. From this time on the flow of urine became profuse and as the patient passed on to quick complete recovery the alkaline treatment was gradually discontinued.

TABLE 6.—URINE, CASE 95

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction	Ammonia	Microscopic
7/11	....	1.005	+	acid	...	0
7/14	280	1.016	+	acid	1.8	Hyaline casts
7/15	300	1.015	1.2*	acid	...	Hyaline and granular casts
7/17	....	1.027	2.1	acid	...	Hyaline and granular casts
7/18	....	1.020	1.5	acid	...	Hyaline casts
7/19	980	1.001	0.4	alk.	0.5	Hyaline casts
7/20	2100	1.005	0.3	alk.	..	Hyaline casts
7/21	2600	1.002	0.3	alk.	...	Hyaline casts
7/22	2940	1.004	trace	alk.	...	0
7/23	3220	1.002	0	alk.	.	Hyaline casts
7/25	....	1.005	0	?	...	0

*Esbach. †Weak alk.
Phenolsulphonephthalein test, August 5, 7 weeks after onset: first hour, 38 per cent.; second hour, 20 per cent.; total, 58 per cent.

The histories represent the general results of the test in scarlet fever.

In Table 7 the results of these and other cases are summarized.

TABLE 7.—RESULTS OF PHENOLSULPHONEPHTHALEIN TEST IN SCARLET FEVER

No.	Type	Duration Weeks	Complications	First Hour %	Second Hour %	Total %
46	Very mild	3	None	35	18	53
40	Mild	5	None	25	30	55
54	Quite severe	5	Acute Nephritis	38	18	56
45	Severe	4	Polyarthritis	8	18	26
		5		20	35	55
48	Severe	3	Infection accessory sinuses	50	15	65
51	Very severe	2	Bartholin abscess	35	20	55
52	Moderate	2	None	35	30	65
53	Mild	2	Acute Nephritis	48	16	64
43	Severe	3	Acute dilatation of heart, acute nephritis	53	32	85
				75	6	81
95	Mild	7	Uremia in fifth week	38	20	58
11	Very severe	3	None	47	23	70
12	Very severe	3	Headaches and nausea	25	23	48
59	Very severe	1	*	15	10	25

* Patient died in epileptic attack 7 days after onset. Post mortem there were found passive congestion and cloudy swelling of kidneys. Marked albuminuria throughout time of observation.

CONCLUSIONS

There seems to be a general lowering of the renal function during the latter stages of scarlet fever. In nearly all uncomplicated cases examined from the third to the fifth week a total output averaging 55 per cent. was observed as compared with a normal of 65 per cent. to 85 per cent. In the instances of acute nephritis, an increased output was observed in two, a lowered output in one. In several instances in which headache and nausea occurred, although no albumin was found in the urine the test showed a decreased function of the kidney. The practical value of the test as an aid in the treatment of this disease in which nephritis is so common a complication is apparent.

RESULTS OBTAINED IN THE NON-SURGICAL TREATMENT OF TUBERCULOSIS OF THE JOINTS*

H. WINNETT ORR, M.D.
LINCOLN, NEB.

The reasons for and against the surgical treatment of joint tuberculosis have been ably presented and discussed by many good writers on the subject. Perhaps the whole argument on the operative treatment of joint tuberculosis is as well presented in the recent work of Goldthwait, Painter and Osgood,[1] as anywhere in recent literature. As I interpret their attitude on this question, it is that we are and should be drifting away from the tendency to operate in these cases in adults as well as in children, but that in selected cases operation may still be considered to be admissible for a variety of reasons, five of which are set forth as being worthy of consideration in connection with radical surgical treatment. Of the five all are held to be invalid under most circumstances. With the views set forth by Goldthwait, Painter and Osgood in this work it is my pleasure to agree most heartily. Their conclusions are at the same time scientific and sensible. It is my purpose, however, in this paper to carry their teachings somewhat further and to strengthen their conclusions if possible, by a series of observations, somewhat different from theirs, on my own patients.

It has been some years since I began to be impressed with the fact that patients with joint tuberculosis coming under our observation who had previously been operated on were, as a general thing, much more seriously disabled and that the active stage of their disease was much more prolonged than even the advanced cases in which the patients had not previously resorted to surgery.

My intention is to compare, in patients operated on and those not operated on, the periods of active disease process and the amounts of resultant deformity. I have therefore checked up recently a series of fifty patients of this character, of whom I had satisfactory records for the purpose. I have attempted to determine the actual period in each during which the disease may be said to have been active. In many cases this was of necessity a matter of estimate, but I have tried to be fair and liberal both to those operated on and to those not operated on. The results of this study show a wide margin of advantage for the patients not operated on. In fact, although the information used is somewhat difficult to determine for statistical purposes, the patients not operated on have done so much better than those who were operated on that the tendency of the conclusions is inevitable, even if a measure of inaccuracy in the original figures should exist.

I found, for example, that of all patients operated on before coming under our care at the Nebraska Orthopedic Hospital and in my private practice and all patients not operated on, the patients operated on averaged a period of active disease much more than twice as great. It is difficult to arrive at any very satisfactory conclusions regarding the amount of difference in the resulting deformity, but conclusions based on estimates as fair as I am able to make them indicate that the patients operated on suffer an amount of deformity

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Goldthwait, J. E.; Painter, C. F., and Osgood, R. B.: Diseases of the Bones and Joints, Boston, 1909.

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greater than the patients not operated on, which also approximates 50 per cent. This fairly agrees with my conclusion as to the length of active disease, for active disease over twice the period would naturally mean more bone and joint destruction and correspondingly greater deformity.

Operation in adults especially is perhaps most frequently invoked as a time-saving expedient. In the patients studied this proved to be a fallacy, as these patients were disabled much longer than the average of patients conservatively treated. Those who did not recover primarily from the surgical operation still thought their treatment practically over, and went or were allowed to go about with the usual result—mixed infection and continued trouble.

There are three or four principal factors which contribute to the bad results which I charge up to surgical interference in these cases: (1) operation on patients who have not been properly selected; (2) operation by inexperienced surgeons under unfavorable conditions, and (3) failure on the part of experienced surgeons who have done good operations to keep the patient under supervision for proper dressings and after-care until recovery is complete. None of these factors except the patient himself is beyond the control of the surgeon, and it is to be borne in mind that the patient who in the early stages of his disease is intolerant of apparatus will also be impatient in the matter of after-care and should be handled accordingly.

All of our experience with bone and joint tuberculosis teaches us that a large percentage of good results may be obtained by conservative treatment when the diagnosis is made early and the treatment carefully carried out. It is hardly necessary to emphasize here the importance and ease of early diagnosis of joint tuberculosis and the simplicity of early treatment. It is unquestionable that careless diagnosis and ignorance on the part of some overenthusiastic surgeons of the splendid results obtainable by efficient mechanical treatment prompt them to do operations of this kind which might better have been left undone. My own experience has been that equally good results may be obtained even in those patients requiring a minor surgical procedure, even in late cases, when it is combined with careful mechanical treatment and strict surgical after-care.

Some of the literature for the last few years urging radical surgery has done much harm because it has persuaded surgeons to undertake these operations who have neither proper facilities nor suitable surroundings in which to do the kind of surgery these patients then require. It is also true that many good general surgeons, having failed to obtain primary results following these operations, have allowed their patients to drift into less competent hands or even to do their own surgical dressings with the necessarily following mixed infection and chronic sinus.

Patients may recover from a large amount of joint damage under non-surgical treatment. The conclusions from my entire list of patients sufficiently emphasize the point that disability and deformity are much less in the patients not operated on.

In passing it may be well to mention that in this particular series there has been no death in any case in which the patient was not operated on, or in any case in which the patient had the first operation under our care, while there have been three deaths in patients previously operated on.

First National Bank Building.

ABSTRACT OF DISCUSSION

DR. LEONARD W. ELY, Denver: In some parts of the United States, what might be termed the accepted or standard treatment for a tuberculous joint is amputation. I think that Dr. Orr goes a trifle too far in the matter of adult joint tuberculosis. I have never seen a private case of adult joint tuberculosis that I could say was cured by conservative measures. I have seen the disease quiet down, and remain quiet for years; but it would then light up again. I think that possibly the reason for the failures in operations in these cases is a mistaken idea in regard to the object to be accomplished. If an adult joint is opened, scraped and drained, it will almost certainly become infected, and, instead of a comparatively simple disease, a serious condition will result. If we open the joint with the well-defined purpose of destroying it and getting bony union, I do not believe that tuberculosis can exist any longer in that locality.

DR. EDWIN W. RYERSON, Chicago: I agree with Dr. Ely that the cases should be demarcated accurately with regard to the age of the patients. I have yet to see an adult patient with a hip- or knee-joint tuberculosis recover without an operation and with a movable joint, and I have yet to see any case of adult hip-joint tuberculosis recover without operation, with any kind of a joint. The chief thing that struck me about Dr. Orr's roentgenograms was that while the patients had recovered without operation, most of them needed operation badly in order to get rid of the abduction deformity that was present. If an osteotomy after the Gant or Brackett methods had been performed, I think that all of them would have had more useful legs.

DR. JOHN L. PORTER, Chicago: I wish to add my testimony to that already adduced in support of the opinion that tuberculous joints in adults do not do so well as those in children. During an experience of nineteen years I have seen several hundred cases of tuberculosis of the joints in adults; and I have seen few recover by ordinary conservative methods—that is, as completely as a child's joint would. I think that many adult tuberculous joints would recover from the symptoms, and, perhaps, show as good result, if operated on. In other words, I think that the mistake is made in many instances in not operating in the case of an adult, because infection is much more likely to be present in an adult than in a child. In the case of a man who is a wage-earner, for instance, and needs to return to work quickly in order to support a dependent family, I should advise operating, as I should not in the case of a child.

DR. EMIL S. GEIST, Minneapolis: I should like to ask Dr. Orr to tell us the end-results in these cases of hip disease. I should also like to ask what he considers a good result, and further, what form of conservative treatment was employed in these cases.

DR. JOHN RIDLON, Chicago: I am rather surprised to hear the remarks of Dr. Porter and Dr. Ryerson. Their ideas are so different from the views that I hold. When I came to Chicago from New York, twenty-one years ago, I thought that it was true, as I had always been taught, that tuberculosis of the joints in adults did not do nearly so well as tuberculosis of the joints in children, but I soon learned that the contrary was the fact in my patients. I found more tuberculosis of the joints in adults in Chicago than I had found in New York, and I learned that tuberculosis of the joints in adults did better than tuberculosis of the joints in children in Chicago. I supposed that this was the experience also of the other men there; but these doctors have had a large experience in the Cook County Hospital, where they see the worst class of cases and where efficient treatment for more than a few weeks is not possible. I have always believed that an adult should be told the facts about operative treatment, and as to the long period that is likely to be required (three, five or even eight years, perhaps) for a cure by non-operative methods, with the possibility of obtaining a cure in a much shorter time by an operative procedure. The best treatment, however, for a tuberculous ankle or knee, and possibly also a hip, in an adult who is

a wage-earner, is certainly an amputation; and I have done one or two amputations in thirty-five years. These patients do get well, but, as Dr. Ely says, you must not take the word of an eminent man, like Murphy or Ridlon, against that of Dr. Ely. You must see the results. I showed to the Central States Interurban Club in Chicago, a few months ago, three patients who had been cured. Since then, I have chanced on two other cases in adults, who had beginning abscesses, and were cured without deformity and without any evidence of their ever having had the disease. My experience is that tuberculosis of the spine is much more serious and is harder to cure in either a child or an adult than is tuberculosis of the hip or knee. I may be wrong in this, but if the spine can get well without operation and without deformity, the hip or knee can, in either the adult or the child.

DR. EDWIN W. RYERSON, Chicago: When I said that I had not seen a tuberculous joint in an adult recover without operation, I meant the joint, and not the tuberculosis. I have seen cases in which tuberculosis of the joint was cured, but not the joint. It all depends on the interpretation of the word "cured." If you mean by this word that the joint has returned to the normal, I have seen no cures in adults, other than the three cases of spinal tuberculosis that Dr. Ridlon showed at the interstate association. If he says that there is motion in these joints, there is.

DR. RIDLON: I do not know whether there is or not.

DR. RYERSON: Well, the tuberculosis is cured; but a cure of the tuberculosis in the joint, does not mean the return of that joint to normal. If such an interpretation is accepted, I have never seen a tuberculous joint in an adult cured, either with or without operation.

DR. JOHN L. PORTER, Chicago: I am going to modify what I said a little differently from the way in which Dr. Ryerson modified what he had said. He hedged by saying that he meant cure of the joint, and not cure of the tuberculosis. I will not hedge a particle. I meant the cure of the disease. I said that tuberculosis of the joint in an adult is seldom and possibly never cured. Persons who have had the disease as young adults will sometimes come back when over 30 years old, showing evidences of the disease in the same locality as formerly. I have at present under my care a woman of 50, who had tuberculosis of the spine and, we believed, recovered five years ago; but she came back to me with the same focus, and also another one, four vertebrae lower. I have been impressed with patients who seemed to be cured, but were not, the patients coming back to me later in adult life with a recurrence.

No one, perhaps, has been so close to Dr. Ridlon as I have. I have worked with him and been his assistant. I do not believe that anyone has a higher opinion of Dr. Ridlon's diagnostic ability than I have; but I know that years ago we made more mistakes in diagnosis than we do now, and I think that many of the spines and hips that we treated then and that improved so quickly might not have been tuberculous, even though Dr. Ridlon made that diagnosis.

DR. JOHN PRENTISS LORD, Omaha, Neb.: I have been associated with Dr. Orr in the work in Lincoln, and I have been a general surgeon for twenty-two years and orthopedics has been a part of my work. Inasmuch as the question of operation and non-operation is under discussion, I want to claim a little credit for the non-operative methods in the treatment of hip disease in the Nebraska State Hospital. We were able to announce in the last report that there had been no amputations. About one-third of our cases are tuberculous. Our patients number between 110 and 115 all the time. There has never been a resection in that hospital, and the only surgery that we do is to meet the surgical indications. There is no orthopedist, I believe, who will take exception to that. I have, however, seen orthopedic surgeons who urged, on the wrong side, I thought, that we did not meet the surgical indications as soon as they would in some cases of accumulations of fluid in and about the joints. My practice has been the same as that of the others who have spoken with regard to adult tuberculosis.

DR. PORTER: Do you treat adults there?

DR. LORD: Occasionally, but not many. They are inconsiderable in number, as a matter of fact. What I say now is in regard to my general experience rather than to my experience in that institution; and that is, that after ordinary methods of treatment have been exhausted in an adult, and he is manifestly losing ground, it has always been my practice to do a resection of the knee, for instance, rather than to allow that man to go on and develop tuberculous osteomyelitis, which would perhaps subsequently necessitate operation. Then, the economic question in the adult is serious. We must do something for these people and enable them to work. We cannot treat them for from three to eight years, as we can a child. It is another proposition entirely.

DR. ARTHUR STEINDLER, Des Moines, Iowa: I wish to mention a case of apparently complete recovery from Pott's disease in a young woman who was first examined by me three years ago. She had all the clinical symptoms of tuberculous spine, the boss of the gibbosity being the eighth dorsal vertebra. Reexamined three years later she had to all appearances a normal spine with no deformity and no restriction of motion. Bearing out what Dr. Porter has said regarding the latent intervals of hip disease in adults, I remember a case of reappearance of tuberculous hip trouble with all clinical symptoms not less than thirty years after the primary infection. Three cases out of my last series of cases of hip disease, treated by Lorenz' method of fixation and weight-bearing have healed with normal range of motion, but as these cases have been exceptionally mild and the bone involvement limited, I should hesitate in basing any preference of Lorenz' method on them.

DR. J. D. GRIFFITH, Kansas City, Mo.: I have had several cases of tuberculous hips in grown persons. Those cases that have recurred, I have made up my mind, were tuberculous; while those that did not recur, were not tuberculous. I probably made a mistake in diagnosis.

DR. FRED H. ALBEE, New York: A point that has not been mentioned should, I think, be emphasized strongly, and that is, what the pathologic condition is. When a tuberculous joint has become cured relapse is extremely rare if it is a bony fixation; but if it is a fibrous union, a fibrous encapsulation of the tubercle bacillus, it is doubtful whether it will relapse or not. Undoubtedly, in adult tuberculosis, relapse does frequently occur. I also wish to emphasize the point that treatment of monarticular tuberculosis in children and that of monarticular tuberculosis in adults should be looked at from different points of view. In adults, operative methods should be employed; in children, conservative treatment.

DR. EDWARD A. RICH, Tacoma, Wash.: We cannot look on the treatment of all tuberculous joints in any general way, saying that all these diseased joints everywhere in the body should be treated either conservatively or surgically any more than we could advise the treatment of all pulmonary diseases or of the exanthemas by hard and fast rules. It is true that there is a vast difference between the course and outcome of tuberculous arthritis in the child and in the adult. Also, it appears that the various joints in the same human body demand different courses of treatment to attain the best results in each one of them. Surgery seems to be most urgent in the region of the ankle. It is often our choice in the knee, while in the hip and spine the tuberculous process gives better results if treated conservatively. In taking up the treatment of joint tuberculosis, I think that it would be better to consider the joints individually rather than collectively, so great is the variance in the mode of treatment of the respective joints.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: The question of operation, it seems to me, depends a great deal on what you do and on the time when the operation is done. I do not believe that in late cases, after there is a considerable destruction of the bone about the joint, operation is of much value in accomplishing ankylosis. Early in the disease, in adult cases, if a small area of bone is removed (just enough to produce ankylosis), I think that good results can be accomplished. I have done several operations of this kind, but it is too early yet to say what the end-result will be. My service in the

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charity department is largely among negroes, and I find that, if something is not done for them early, no result is ever accomplished and amputation is inevitable. I think, therefore, that something should be done in order to see what can be accomplished by an operation—not for the removal of the disease, but for the purpose of producing ankylosis. In discussing operative and nonoperative treatment, most of us have the idea of the old type of operation—excision at the knee. We never do that. I do the Albee operation on the hip, removing a small area from the superior surface of the head of the bone and the corresponding area in the acetabulum. At the knee, I remove as small an amount of bone as possible, so that no deformity is produced by a lack of bone.

DR. HENRY LING TAYLOR, New York: It seems to me that we should emphasize a few points more than they have been emphasized. In the first place, is there anyone in the United States who is doing major operations freely in the early stages of joint tuberculosis in children? If so, I should like to know of it, and say that I think it is unjustifiable. In adults, the problem is different. The matter of major operations for joint tuberculosis in children has been tried out extensively and dropped. Dr. Sayre tried it and abandoned it. It has been carried out in England by Wright, of Manchester, and abandoned; also in Germany. It has been abandoned everywhere that it has been tried. The results of the conservative treatment of these cases are so favorable in children that there is no reason for trying a radical operation. In adults, we have different pathologic conditions, different economic conditions, and, perhaps, different conditions of prognosis. The necessity in them for a radical operation in cases of tuberculosis is in proportion to the nearness of the disease to the end of the extremity, at least in the leg. When the lesion is in the spine, we cannot do a radical operation. I have seen spinal tuberculosis in adults entirely cured by conservative treatment, however; and I think that that is the only management open to us in these cases, except the Albee operation and the other methods of ankylosing the spine. The extirpation of the focus in children has been tried in the hip extensively by Tunstall Taylor, and abandoned; but we have good opportunities to try it in the knee and the ankle. These operations are sometimes advisable. Every once in a while, there is a case with a distinct focus that you can get at before the joint is involved, as proved by the pathologic findings after the operation. I look for these cases; and when I find them, I operate, and obtain good results. Another reason for operating in children is to save their lives. Sometimes the cases are so bad that you have to do something. Then you operate and extirpate the disease, either with an amputation or, if possible, a resection. Recently an English surgeon, Mr. Bennett, of Birmingham, told me that he has gone back to a modified excision of the knee in children, and thinks highly of it. He does an arthrodesis of the knee, shaving off the cartilage and a thin layer of bone, and he says that he does not get the bad results that we used to get in excisions in children. In adults, we can operate freely. If we have to sacrifice most of the joint, we do not have to sacrifice anything that has not already been sacrificed. Even if motion is present, it will not be when the case is finished; or be anything but a detriment, if it is present. The object then is to ankylose the joint.

DR. REGINALD H. SAYRE, New York: I should like to put myself on record as practically agreeing with everything that Dr. Taylor has said, except that he seems to be under an erroneous impression in regard to my father's stand in operating on early tuberculosis. When he first excised hips, he was not allowed to operate on any but persons who were almost dying, or who were full of sinuses and certain to die, if left alone, in a few weeks. The general consensus of opinion at that time was much opposed to it. In his writings, my father said: "When this operation is regarded as justifiable by the medical profession, they will have progressed far enough in the ability to make accurate diagnoses that the operation will cease to be of use; for the cases will not be allowed to go on until they require resection of the joint."

DR. NEWTON M. SHAFFER, New York: I have listened with a great deal of interest to this discussion, because it brought back to my mind my old experience with Dr. Taylor and Dr. Sayre, and my own experience in the Orthopedic Hospital and the Children's Hospital. I agree with what seems to be the consensus of opinion; and that is, that conservative treatment should be applied in almost every instance of tuberculous disease of the joints of the lower extremity. I have amputated in only one case; and I think that that was a mistake. Of course, we all know that excision of the joint is inadvisable; and I wish to repeat what I said at the first meeting of the American Orthopedic Association, that excision of the hip-joint is impossible. That is, we can decapitate the femur; but the acetabular wall is so thin that excision of the hip should really be called decapitation of the femur. I did one or two of these operations in St. Luke's Hospital. Dr. Sabine and I selected some incipient cases and excised them, only to set up an irritation. I have a rule that I regard as invariable for the treatment of cases in the knees of adolescents and adults. I am simply repeating what others have said, but I wish to confirm their opinions. In an adolescent shop-girl or a boy going to school, I would advise against spending the long period of time required to secure the result by conservative measures. Therefore, I almost uniformly recommend an excision in these cases. When it comes to the spine, Dr. Griffith's statement that he makes his diagnosis in such cases after the result is obtained, classifying them as nontuberculous or tuberculous according to what is found, is interesting. We all know that spinal disease often does cure itself. I have seen a good many cases of cure with practically no treatment. It was, I believe, the original idea that first suggested the use of spinal support that as soon as the ribs in Pott's disease reached the pelvis, the disease began to cure itself, owing to the support obtained from the ribs resting on the pelvis. I have seen cases of cured Pott's disease of tuberculous origin. I know that the patients were cured, because they remained well for years. The liability of relapse in the knee or hip of the adolescent is great. Only a year ago, I saw a patient that I had treated fifteen years ago, at the Orthopedic Dispensary. She left the dispensary with a fairly flexible knee, but she now has a worse case than she had when I first saw her. She will not submit to excision, but I quite agree with the others who have spoken that this would be the best treatment for the case. As some of you know, I was once abused for not advising operative interference for cold abscess, but conservative measures. That has now become the accepted form of treatment.

DR. H. WINNETT ORR, Lincoln, Neb.: I have deliberately taken the attitude on this question of arguing against the double standard of treatment for adults and children with joint tuberculosis. The differences in pathology between this condition in children and in adults are, I think, not so great as has been suggested. So far as my own series of cases is concerned, five of these were in adults, three of whom have remained well for a year or more, without operation. One of these patients, with a tuberculous knee, was 26 years of age; one, with tuberculosis in the spine, 32; and the third, with tuberculosis of the wrist, 48. How long they will remain well, I cannot say. With due apologies to Dr. Porter, I would say that while they may not be tuberculous, they have every indication of being so. I regard a good result in these cases as being not necessarily the restoration to function of the involved joint, but a return to function of the individual, which I consider to be much more important. No one maintains that in any considerable number of the cases, with or without operation, there will be a return of the joint to the normal; but in these cases that I have studied, the patients were much worse off after operation than patients of the same class without operation.

Another thing that I wish to say is, that the fact that many of these patients, adults who have been treated conservatively, do not do so well as children is partly because they are usually not well controlled. This is mostly, of course, the fault of the patients; but if the adults were as well controlled mechanically as children practically always are, they would do better, and perhaps more frequently recover than they now do.

With regard to methods of treatment, I would not care to say much, except that I have paid more attention to fixation than to any other element in the treatment, especially with adults whom you cannot keep in bed and to whom we cannot apply the methods that are used so extensively in the cases of children.

THE WHITMAN OPERATION FOR TALIPES CALCANEUS PARALYTICUS *

JOHN PRENTISS LORD, M.D.
OMAHA

During the last year I have done the Whitman operation twenty times on eighteen patients, and the immediate results have been so gratifying that I am most enthusiastic in indorsement of the operation. At a clinic given before the American Orthopedic Association in New York, May, 1912, I was privileged to witness the performance of the operation by its author. Prior to this time its full technic had not been sufficiently comprehended to justify its adoption. But my indifferent results had stimulated my special interest. The results in very numerous cases there exhibited were convincing. A personal communication from Professor Whitman states that few, besides himself, do the operation in New York. It is my observation that too few surgeons employ this method of radical relief, and I, therefore, desire to aid the cause of its popularization through the report of the results of my experience.

The operation has a wider range of application than for calcaneus alone and may be modified by various tendon transferences to meet special indications.

The primary indication in extreme cases of paralytic deformity is the establishment of stability. The secondary indication is the utilization of available muscle power for a balanced action and maximum of function; these attained, there is little or no tendency to a relapse of the deformity.

The fault of the operations which deal with muscles and ligaments only, in cases inherently weak because of extensive muscular deficiency from paralysis, is that the soft parts yield to the subsequent strain put on them and relapse in greater or less degree, unless, perchance, a careful after-supervision and the use of artificial supports is continued indefinitely. But recurrence is inevitable in many, unless a more distinctly radical operation is done. This is afforded in the Whitman procedure, which was primarily devised by him for extreme calcaneus paralyticus. It is now demonstrated to be useful in other varieties of talipes characterized by great instability. It should also be used in patients destined to develop the deformities for which it is indicated. This is pursuant to a distinct tendency now existent to do definite things for the crippled and deformed, instead of palliating or temporizing for months or years, conditions which should, if possible, be permanently corrected at the outset.

The Jones operation for talipes calcaneus has a more distinct indication in the fully developed calcaneus deformity in the adult foot. It is a two-stage procedure and has been little used in this country.

DESCRIPTION OF OPERATION

The Whitman operation as described by its author is in abstract: "astragalectomy, arthrodesis, tendon transplantation and backward displacement of the foot." The following is the description in detail:

A long, curved, external incision is made passing from a point behind and above the external malleolus below its extremity and terminating at the outer aspect of the head of the astragalus. The peronei tendons are then divided just in front of the malleolus, completely separated from their sheaths and drawn backward. The lateral ligaments are next divided and the joint is opened. The interosseous ligament is cut through and the foot is twisted inward. When the attachments to the navicular have been freed the astragalus may be removed. A thin section of bone is then cut from the outer surface of the adjoining os calcis and cuboid, and on the inner side the calcaneonavicular ligament is partially separated from its navicular attachment. The lateral ligaments are freed from the two malleoli and the cartilage is removed from their inner surfaces. The foot is then displaced backward as far as possible so that the external malleolus may cover the calcaneocuboid junction, while the inner is forced into the depression behind the navicular, the malleolus being changed in shape if necessary to assure accurate adjustment. Finally, the peronei tendons are drawn through an opening in the tendon Achilles, or they are sewed to it and then reunited to their respective tendons with strong silk sutures. The wound is closed without drainage, and the foot is then held in an attitude of equinovalgus by a plaster bandage fixing the leg at a right angle to the thigh. The object of the removal of the astragalus is to assure stability and to prevent lateral deformity by placing the leg bones directly on the foot. Incidentally it restores the symmetry of the foot. The object of the backward displacement of the foot is to direct the weight on its center and thus to remove the adverse leverage and to prevent dorsal flexion by direct contact of the tarsal bones with the anterior margin of the tibia. The tendon transplantation is an additional safeguard against deformity and of service in restoring function. In about three weeks the long plaster is removed and a short one is substituted, the foot being fixed in moderate equinus by a cork wedge beneath the heel. On this the patient is encouraged to walk. The plaster support may be used with advantage for six months or a light brace may be substituted for it. Eventually the brace is discarded and a shoe with a cork inner sole adjusted to the attitude of plantar flexion is substituted.

Whitman says that he "usually thickens the sole one-fourth inch on the outer border to guard against the inclination toward varus. If all the details are properly carried out, particularly the backward displacement and adjustment of the malleoli, the result is a symmetrical foot, a movable ankle-joint, and yet a secure support that eventually enables the patient to dispense with the braces."

SUMMARY OF OPERATION

In brief, the Whitman operation for talipes calcaneus consists of:

1. The removal of the astragalus.
2. The freeing of the malleoli and the preparation of a new articulation.
3. The transplantation or resuture of the peronei tendons.
4. The backward displacement of the foot.
5. The fixation of the foot in equinus.

After-Treatment.—A fixation plaster is kept in position for about four weeks, then an ambulatory plaster is used for about five months.

Results.—Cavus and lateral instability are corrected, the backward displacement checks dorsal flexion by direct contact and by change in leverage, and the power of the transplanted muscles is made more effective.

OBSERVATIONS

This operation is called radical because it restores symmetry and assures stability. It is the only effective procedure for an advanced deformity and it is also indicated in early cases as a preventive of progressive deformity.

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

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I have done many astragalectomies, arthrodeses, tendon transferences and silk implantations for these various paralyses of the feet during several years, but not until I had seen actual results from the Whitman procedure was I willing to adopt it.

The failure of many tendon transferences and silk implants is due to too much dependence being placed on weakened and easily over-stretched muscles and insecure silk attachment, whereas, if the midtarsal joints are ankylosed by arthrodesis the transferred muscles will not yield to overstrain and will serve a beneficial purpose. In the extreme cases the Whitman operation will be found to give greater stability because one articulation, the tibio-astragaloid, is eliminated, hence mobility is lessened. Feet which have had the Whitman operation performed on them do not wobble or roll over, nor do they show a tendency thereto.

Many of the relapsing cases of paralytic talipes equinovarus have by previous forced corrections had the external malleolus forced backward until the fibula is almost beside the Achilles tendon. The tibio-astragaloid joint is much too far backward to allow of a sufficient degree of stability to the foot. The few remaining extensors are under too great a handicap to control such a foot. Tendon transferences alone under such circumstances are failures, or, at least, disappointing. Supplemented by arthrodesis the results are better, but, done early, arthrodesis is not of lasting benfit because too free motion is in time established. It is my opinion that the indications are not so well met by any of these procedures as by the Whitman operation, modified as necessary by tendon transference and silk implantation. In the Whitman operation weight-bearing is farther forward and lateral motion is eliminated. The motion is adequate and the foot is stable. Without the overload otherwise existing, the well utilized transferred muscle power may be adequate to give a fair degree of extension for the toes.

The overstrong calf muscles may be so divided and transferred as to control the inherent tendency to deformity. Thus for many weak, deformed and unstable feet the modified Whitman operation would also seem to afford the maximum operative relief.

Cases of extreme paralysis with a potential deformity, are suitable for this treatment. The feet destined to develop the various forms of talipes for which this procedure is subsequently indicated may be operated on before the exaggerated conditions are developed, and thus prevent their development. By these means, therefore, the long discouraging course of less radical procedures and the attendant anxiety of the parents and surgeons may be avoided, in my opinion, as is also claimed by Whitman, whose efforts to popularize his operations have not been so successful as their merits warrant. The restoration of contour, the fixation and the early restored function are all in its favor. Most of these patients resumed the use of their feet within three or four months and their ultimate permanent improvement is quite fully assured. The time is still too short in the later cases, however, for final conclusions.

On further study of the cases I am free to admit that in some of the earlier ones improvement could have been made if later and more mature experience had been available. The typical or stereotyped operation is not to be adhered to, because indications vary, especially when the operation is performed to ameliorate conditions other than the one for which the operation was originally devised.

501 Paxton Building.

ABSTRACT OF DISCUSSION

DR. CHARLES A. REED, Minneapolis: I had the pleasure of assisting Dr. Whitman in doing this operation fifteen or twenty times and have watched the results in the patients as they returned to the dispensary of the Hospital for Ruptured and Crippled. The results are as satisfactory as are obtained in the treatment of any other form of deformity with which I have had to do. I have used it in my practice a number of times since. I should like to mention one feature, and that is that the displacement of the leg forward on the foot may look as though it were complete at the time of operation, and then as it heals it often seems to slip back. The cases in which the operation was not fully successful were those in which the forward displacement of the tibia was not complete. All the cases in which I have done this operation have been cases of talipes valgus rather than varus. I have never realized that it was indicated for varus deformity; but it certainly is satisfactory in valgus, which is a more difficult deformity with which to contend.

By shortening the tendons it is often possible to obtain good functional results even in those cases in which the muscles are practically all paralyzed because the result is a firm fibrous union.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have seen a great deal of the work of Dr. Whitman and of his results. His results seem to be exactly as Dr. Lord has told us. I have done the operation five or six times, and, in every instance, with great success. I feel that the operation has a wider range of usefulness than is generally considered.

All my cases have been valgus cases, with the exception of one, which was a varus case. There are some points in doing the operation that are important and interesting. Dr. Lord did not go into the details. One of these is holding the foot in exactly the proper position, displacing the tibia backward between the malleoli, and at the same time holding the foot in a moderate equinus position. Many of the failures in the operation are, I think, due to the fact that the foot is not held in the proper position at the time of operation; the actual slipping probably occurs then, and not later. I have had absolutely no trouble in my few cases. The parts were all in good relation when the cast was removed and have remained so. The oldest operation has been done just two years at the present time, and the result is just as good now as it was at first. The special indication for the operation is when there is only paralysis of the leg below the knee. In these cases, it gives a good, stable foot, and one that is elastic. It has the advantage over arthrodesis in that the patient has elasticity and has not the discomfort in walking on uneven ground that is experienced by those on whom arthrodesis has been performed.

DR. JOHN PRENTISS LORD, Omaha: I am glad that Dr. Campbell brought out the importance of the equinus position in doing this operation. We have been particular about this, and the equinus position has been greatly exaggerated. It is important, however, to bear in mind that it is an abnormal position, one that you would not care to have permanent; and to be especially careful to modify the position to the final degree desired, at the three-week's period, when the initial cast is removed. It is to be borne in mind that this is highly essential; because one of the chief features of the operation is the securing of an anterior position to the joint. I think that one reason for the failure of other operations of all kinds is the fact that the foot has been so unstable that the enfeebled muscular power and laxity of the ligaments could not be expected to give a firm foot. The importance of stability is a great factor, and I think that this is the secret of the indication for the operation. We have heard a great deal about the unsatisfactoriness of muscle transference, silk implantation and all that sort of thing. It is because too much is expected from that kind of support. If you once render the foot stable and put the bony framework into position to do its part with the least amount of strain on the inherently inadequate soft parts, you will then comprehend the real advantage of the Whitman operation; because it does give stability, it puts the muscular leverage to the greatest advantage. While speaking of this, I wish to

mention the great necessity for giving particular attention to this when you depart from the original indication for the Whitman operation and do that operation for conditions in which the muscles in the posterior part of the leg are overacting. If my work is to be criticised, I would say that I have subjected it to the criticism that I had not given sufficient consideration to the fact of muscle power in the calf muscles, particularly when an overadvantage is given them by dislocation of the foot backward. We should therefore redistribute the pull on such feet.

I did not mention, in considering the after-care, that these patients always have short legs, and that you have still further shortened the foot and leg by the elimination of the astragalus. It is highly essential, therefore, that one shoe should be slightly raised. The size of the foot is reduced, so that it can be placed in a large shoe with practically all of this extension let into the inside; so that the deformity is not conspicuous. These patients, however, should not be expected to have their feet firm at a right angle. They should be made to maintain a slight equinus position.

THE RELATIVE VALUES OF THE ROENTGEN RAY AND THE CYSTOSCOPE, IN THE DIAGNOSIS OF VESICAL CALCULI *

EDWIN BEER, M.D., NEW YORK

The surgeon who sees a great deal of bladder material is well aware of the fact that roentgenoscopy does not regularly demonstrate vesical calculi. During the past two years I have had this experience so frequently that I have deemed it my duty to review all the cases of bladder stones in which I have had a roentgenogram taken and to place them in a brief paper before the medical public. I have considered this advisable, as the average internist is very liable to be satisfied with a negative roentgenogram in excluding the presence of a calculus in the urinary bladder.

The Roentgen-ray work done on these cases (by Dr. Jaches) has been of the highest quality; therefore the fact that so many of the cases showed no stones can in no wise be attributed to the radiographic work. It is only fair to state that the Roentgen-ray work was of the routine type, one plate for the kidneys and one for the pelvic portion of the urinary tract. I believe that the following array of cases will show rather conclusively that even plates so carefully made will miss stones in the bladder with considerable frequency.

During this period I have had twenty-two cases of vesical calculi radiographed. In only six cases did the calculi show in the roentgenogram. On the other hand, in every case the diagnosis was made with the cystoscope. Of the sixteen negative cases, the calculi were examined chemically in nine cases by Dr. S. Bookman. These nine cases showed the following chemical composition:

Case 1: Ammonium urate with small amounts of calcium carbonate and ammonio-magnesium phosphate.

Case 2: Uric acid and traces of calcium and magnesium phosphate.

Case 3: Ammonium urate.

Case 4: Uric acid and traces of calcium and magnesium phosphate. (This was a renal calculus that had wandered into the bladder.)

Case 5: Sodium and potassium urate and uric acid.

Case 6: Uric acid and ammonium and sodium urate.

Case 7: Ammonium urate.

Case 8: Ammonium urate.

Case 9: Uric acid and traces of calcium oxalate.

In these sixteen negative cases, nine patients had prostatic adenoma as well.

From these data it is evident that the cystoscopy is a much more reliable diagnostic aid in vesical calculi than roentgenoscopy. How frequently similar stones escape the radiographic examination in the upper urinary tract, I would not venture to say, though such cases as No. 4 are probably not so rare as most surgeons at the present day believe. Perhaps with improvement in technic and newer methods, which will coat the calculi with a layer of salts that does not allow the rays to traverse the modified calculus with equal ease, it may become possible to demonstrate all of these uric acid and uratic calculi both in the upper and in the lower urinary tracts.

48 West Seventy-Fourth Street.

* From the Genito-Urinary Surgical Service of the Mount Sinai Hospital

A STREPTOCOCCUS PRODUCING SYMPTOMS OF CHOREA IN A DOG *

GEORGE F. DICK, M.D., AND T. ROTHSTEIN, M.D., CHICAGO

The streptococcus spoken of in this report was isolated from the throat of a patient with a case of chorea of five years' duration. Similar organisms have been isolated from a number of cases of more acute chorea. A detailed report will be published in the *Journal of Infectious Diseases*.

The streptococcus as grown on blood-agar forms a heavy, dirty-white growth with a border well raised above the medium and a wide zone of hemolysis. It grows aerobically and anaerobically equally well and grows on all ordinary media. It ferments milk with slight acid production but no coagulation. It does not ferment dextrose, lactose, mannite, inulin or saccharose. As grown on the surface of agar-slants, the streptococcus is a Gram-positive organism occurring in irregular groups and short chains with such an abundance of smaller Gram-negative forms as to give the impression of a mixed culture. In milk it grows in extremely long chains, and staining fails to show a capsule.

A dog which was injected intravenously with the growth from four agar-slants developed choreic movements within twelve hours.

122 South Michigan Avenue.

* From the Memorial Institute for Infectious Diseases, Chicago.

A SCARLATINIFORM RASH FROM ATOPHAN †

W. W. HERRICK, M.D., NEW YORK
Assistant Physician, Roosevelt Hospital

The patient, a woman aged 38, was admitted to the Medical Service of Roosevelt Hospital May 30, 1913, suffering from an acute polyarthritis involving knees, ankles, wrists, cervical spine, the temporomaxillary and many interphalangeal joints. The maximum temperature was 103. There was no history of previous attacks nor was there any cardiac involvement.

Drug treatment was begun with large doses of sodium salicylate, 240 grains being given each twenty-four hours, from May 30 to June 4. The temperature fell to 101, but pain was not relieved. June 4 the sodium salicylate was discontinued and atophan 15 grains given three times a day to June 7, when the same dose was given every four hours. This was continued until June 11, when the dose was made 7½ grains every four hours. Pain was relieved and the temperature fell to 99.

June 13 there was a sudden rise of temperature to 103 with headache, vomiting and prostration, all without return of joint symptoms. Within three hours a rash appeared on the chest and neck, spreading thence to the remainder of the trunk and the extremities, but not to the face or scalp, which remained free from the exanthem. This rash was at first a punctate erythema which later by coalescence of the thickly placed spots became diffuse on the chest, while preserving a more macular character on the abdomen and extremities. The mucous membranes were not involved. Atophan was immediately discontinued and within forty-eight hours the eruption faded, disappearing after three days. This rash was strikingly like that of scarlatina both in appearance and distribution. There were, however, no throat or other symptoms to suggest this disease.

† From the Medical Service of the Roosevelt Hospital.

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As a matter of experiment, on June 16, atophan 45 grains was given within twenty-four hours and was followed by a chill and a sudden rise of temperature to 103, these symptoms subsiding on again discontinuing the drug. There was no skin rash at this time.

So far as I can discover no instance of skin eruption from atophan has been reported. Such effect is doubtless due to the quinolin nucleus of the 2-phenylchinolin-4-carbonic acid and is therefore analogous to the rashes observed in certain individuals after the administration of quinin. Consequently one may well expect to meet with occasional erythemas and urticarias from the use of this drug. Our own patient was given quinin at a later time and showed no evidence of idiosyncrasy.

49 East Fifty-Third Street.

A Simple Method for the Relief of Ordinary Fainting.—While attending St. Peter's Hospital in London in 1899 I was impressed with a simple procedure in daily use for the relief of this condition. It was the custom of the surgeons at that time, Mr. Reginal Harrison, Mr. E. Hurry Fenwick, Mr. P. J. Freyer and Mr. F. Swinton Edwards, to pass bougies and sounds with the patient standing. The many patients would form themselves in a long line and occasionally one of them would become faint, sometimes even before the instrument was passed. It was the custom to have a vacant chair beside the surgeon who, when he noticed the condition of the patient, would have him seated in the chair, and the surgeon or his assistant would press the patient's head down between his (the patient's) knees, thereby lowering the head below the trunk, and by forcibly flexing the head on the chest retard the return circulation and thus relieve the anemia of the brain. Holding down the head for a minute is sufficient. I have seen this done many times and since then I have done the same and have thereby saved myself much annoyance. If at the minute the patient shows the first sign of becoming faint the head is pressed well down between the knees, it will be unnecessary to use the horizontal decubitus. This method works beautifully in a crowded room or car.—JOHN A. HAWKINS, M.D., Genito-Urinary Surgeon to South Side Hospital, Pittsburgh, Pa.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

NINHYDRIN.—Triketohydrindenhydrate.—Ninhydrin is phenyl-1,2-triketo-cyclopropane hydrate $C_6H_4\langle{}^{CO}_{CO}\rangle C(OH)_2$, a derivative of inden (phenyl-1,2-cyclopropene) $C_6H_4\langle{}^{CH}_{CH_2}\rangle CH$

Ninhydrin occurs in the form of colorless crystals readily soluble in water. When heated it becomes red at 125 C., swells at 139 and melts at 239-240 C. The aqueous solution colors the skin violet and reduces Fehling's solution. When heated to the boiling point in aqueous solution it gives a blue color in the presence of protein bodies or amino acids derived from them which have the amino group in the alpha position in relation to the carboxyl. It gives this reaction with compounds that no longer respond to the biuret reaction.

Actions, Uses and Dosage.—Ninhydrin is not employed therapeutically. It is used as a reagent for determining the presence of albumin, peptone, polypeptids, and amino acids. This test is especially applied to demonstrate the presence in blood serum of specific proteolytic ferments, especially in the diagnosis of pregnancy, according to the method of Abderhalden.

10 c.c. of the material to be tested is mixed with 0.2 c.c. of a 1 per cent. aqueous solution of ninhydrin, the mixture heated to the boiling point and kept boiling exactly one minute. The presence of amino acids or their protein compounds is indicated by a distinct blue color of the liquid.

The biologic test for pregnancy according to Abderhalden is carried out as follows:

About 1 gm. of coagulated placental tissue is boiled with ten times its volume of water, and the water poured off and this treatment repeated until the liquid contains nothing which will give a reaction with ninhydrin. When it no longer responds to the ninhydrin test it is placed in a diffusion cell with 0.65 c.c. of blood serum free from hemoglobin, and the mixture is allowed to diffuse into 20 c.c. of distilled water. Both the dialysate and the liquid in the cell are covered with a layer of toluene. The dialysis is continued for from twelve to sixteen hours in the incubator at a temperature of 37 C.

To 10 c.c. of the dialysate 0.2 c.c. of a 1 per cent. aqueous ninhydrin solution are added, and the test performed as described above. If a blue color results the serum has been derived from a case of pregnancy.

Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a.M., Germany (Farbwerke-Hoechst Co., New York). No U. S. patent or trademark.

PLACENTAPEPTON.—Placentapepton is a preparation of peptone derived from the placenta and employed for the purpose of the optical test for pregnancy according to Abderhalden.

Placentapepton is a yellowish powder, soluble in water and having the properties of peptone.

Actions, Uses and Dosage.—One c.c. of the serum to be examined, which must be absolutely free from hemoglobin, is mixed with 1 c.c. of a 5 per cent. solution of placentapepton in 0.9 per cent. solution of sodium chlorid. This mixture is placed in an Abderhalden polarization tube of 2 c.c. capacity surrounded with a water jacket. The rotation is immediately determined. The polarization tube is then placed in the incubator and examined at intervals of two hours at first and later at longer intervals for the amount of rotation. This test of rotation should be continued not longer than forty-eight hours. Only variations of 0.05 degree are to be regarded as essential changes in the rotatory power. Placentapepton cannot be employed in the diffusion test for pregnancy.

Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a.M., Germany (Farwerke-Hoechst Co., New York). No U. S. patent or trademark.

ANTIRABIC VACCINE.—Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Rabies Vaccine.—Rabies vaccine is prepared according to the method of Pasteur and is a complete treatment, consisting of 25 doses, to be administered during 21 days. Each day's injection is shipped in a vacuum bottle. Complete description and directions accompany each outfit.

NON-PROPRIETARY BRANDS OF ACCEPTED ARTICLES.—Having been found to comply with the standards adopted, the Council voted that the following brand of an accepted article be listed:

Copper Citrate, Merck.—Manufactured by Merck & Co., New York.

Transfer of Agency.—The biologic products formerly manufactured by the Sophian-Hall-Alexander Laboratories, Kansas City, Mo., (described in THE JOURNAL, A. M. A., April 5, 1913, p. 1074, and April 19, 1913, p. 1227, Sept. 6, 1913, p. 771) are now manufactured and sold by E. R. Squibb & Sons, New York.

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SATURDAY, OCTOBER 11, 1913

THE RELATION OF NUTRITION TO TRANSMISSIBLE TUMORS

If one may judge by the direction which experimental work in relation to the cancer problem has taken in recent years, the greatest promise of any considerable degree of success in unraveling the secrets of these neoplasms lies in the study of the transmissible tumors of animals. The considerable experience now available in many laboratories in diverse parts of the world shows that conditions are attainable in which these tumors can be brought to quite a constant degree of virulence as measured both by the percentage of positive inoculations and by the rate of growth on a given lot of animals. But when the same growth is tried on different strains of test animals in remote places the apparent virulence of the tumors shows variations which have hitherto largely baffled all attempts at a rational explanation. We are told with respect to the so-called spontaneous tumors of mice that a breeder may find a large number of tumors among his animals, but that they can rarely be transplanted successfully. A large number of the subcutaneous adenocarcinomas are not transmissible even to mice of the same strain.

Such facts raise the question as to the underlying reason for the variations in susceptibility or immunity of the host. The incidence of sex, age and heredity has been taken into account by different investigators. By some it has been believed that when a nutritive tax is put on the organism, as happens during pregnancy or when a person is ill or undernourished, conditions might be found relatively unfavorable for growth in general, the neoplasm included. Against this may be arraigned the view that precisely under conditions of poor nutrition is immunity at a lower ebb. In so far as pregnancy is concerned, we are reminded that the conditions then obtaining may be expected to stimulate rather than retard growth.[1] The situation with respect to the possible bearing of age and heredity is no less confused.

The foregoing considerations involve in essence what may be termed the internal conditions modifying growth, in contrast with the external factors, such as light, climate and diet, which are independent of the individual involved. Most of the work on the influence of diet has, until quite recently, been of a desultory character. An unfavorable influence of poor nutrition brought about by intercurrent disease has, it is true, been reported; although instances of actual partial starvation have not yielded the same outcome.

Sweet, Corson-White and Saxon[2] have followed a somewhat new path in the study of the relation of nutrition to transmissible tumors. Their plan was based on the feeding experiments of Osborne and Mendel.[3] The latter investigators have shown that it is possible to maintain rats for considerable periods of time on diets composed of isolated foodstuffs, including fats, carbohydrates, inorganic salts and a single protein. The possibility of growth in contrast with the mere maintenance of animals on such dietaries is dependent on the nature of the protein fed. Thus they were able by special selection of the ingredients of the diet to maintain young (ungrown) animals in health for long periods without any evidence of increase in size. In other words, their animals were not starved in any sense except a very specific one—certain substances essential for satisfactory growth were lacking. Sweet and his colleagues at the laboratory of the American Oncologic Hospital in Philadelphia have applied this newer knowledge of the unlike conditions governing nutrition in growth and maintenance, respectively, to the behavior of transplanted tumors. They asked themselves: Regardless of whatever may be the ultimate cause of cancer, can a cancer grow in a body rendered incapable of normal cell growth?

Inoculated rats and mice still capable of growth were placed on the Mendel–Osborne stunting diet, and others on the customary mixed food. The results are of surprising interest. The number of successful transplantations was remarkably reduced by a diet which prevents normal body growth. The rate of growth of the tumors which do "take" is much slower on the stunting diets than on the control food, and the number of retrogressions is high on such a diet. The effect is not only exerted on the reciprocity of the host, but retrogressions also occurred on the Mendel–Osborne diet, though not among the control animals.

The clear-cut demonstration of the possibility of influencing the growth of transplantable tumors by proper diets opens up new avenues of research and encourages a continuance of the studies begun in this direction.

THE OPEN-AIR TREATMENT

It sometimes happens that when the current explanation of a phenomenon is disproved the impression is produced in some minds that the occurrence of the phe-

1. Rous, P.: Jour. Exper. Med., 1911, xiii, 248.

2. Sweet, J. E.; Corson-White, Ellen P., and Saxon, G. P.: The Relation of Diets and of Castration to the Transmissible Tumors of Rats and Mice, Jour. Biol. Chem., 1913, xv, 181.

3. Osborne, T. B., and Mendel, L. B.: Beobachtungen über Wachstum bei Fütterungsversuchen mit isolierten Nahrungsubstanzen, Ztschr. f. physiol. Chem., 1912, lxxx, 307.

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nomenon itself is denied. Something of this sort has taken place with reference to the recent work on the physiologic factors involved in room ventilation and the open-air treatment. There is reason to believe that the general public is still in some confusion on this point. It was for a long time supposed that the bad effects of close and crowded rooms were due to chemical impurities in the air, to excess of carbon dioxid or to organic poison, or else to oxygen impoverishment. No one of these explanations is tenable in the light of recent experiment. On the contrary, all the ill effects observable in crowded rooms seem to depend on the stagnation, high temperature and moisture-content of the air; in a word, to those factors that produce a disturbance of the normal heat regulation of the body. If the temperature and moisture are kept low, human exhalations may be allowed to accumulate without noticeable effect to a point far above that ordinarily observed in the most "badly ventilated" room. On the other hand, if the experimenter breathes "pure" outdoor air through a tube but allows his body to be confined in a small chamber where temperature and moisture are at a high point, he will soon have all the symptoms commonly attributed to "breathing foul air."

To substitute this explanation, which is wholly in accord with recent experimentation, for the once-current theory that expired air has a toxic property is not to question the value of fresh air or to decry the open-air treatment for tuberculosis. On the contrary, we are in a much better position to understand in what way cool air and especially moving air produces marked invigoration and improvement of the general health. When the body loses heat at a suitable rate, heat production must also proceed at a certain rate in order to compensate for the loss, and metabolism is increased at equal pace. Increased metabolism means improved quantitative and qualitative assimilation of food; and, as Hill has pointed out, a larger consumption of food means a wider choice of "building-stones." The action of cool, moving air on the skin and cutaneous nerves is probably in itself beneficial. Moreover, it impels to exercise, and an increased activity on the part of the body increases metabolism.

On the other hand, exposure to the stagnant atmosphere of confined places allows the skin to become surrounded with an envelope of warm air which prevents the body from losing heat at a proper rate. The nerve-endings of the skin are not stimulated. The circulation is depressed. Reluctance to exercise and to any bodily exertion becomes marked. Expansion of the lungs and oxygenation of the blood are less frequent and thorough. Metabolism is sluggish. Insufficient food is taken to supply the demands of the tissue for variety, and much of the food eaten may decompose in the intestine and produce toxic products.

Altogether there is still a sound physiologic foundation for the belief in the virtues of the outdoor life for the healthy as well as for the tuberculous person. In point of fact, nothing can discredit the rational open-air treatment, no matter what progress physiologists and hygienists may make in analyzing the mechanism on which this treatment rests.

THE BACILLUS OF CONTAGIOUS ABORTION IN COW'S MILK

A recently issued report from the Bureau of Animal Industry of the United States Department of Agriculture[1] calls attention anew to the infectious abortion of cattle, a disease which ranks second only to tuberculosis, and in certain sections of the country occasions even greater money losses. When we recall further that an infection of insidious character, in which there is practically no apparent change in the health of the mother prior to the abortion, can bring about the loss of the offspring, the loss occasioned by a reduction in the milk-supply, together with the failure to conceive for several months or at all after the abortion, the seriousness of the epizootic becomes apparent.

The causative agent in the infectious abortion of cattle has now been identified as the *Bacillus abortus*. The virus can be introduced into the body in various ways, such as the digestive tract, the vagina and perhaps the respiratory passages. No matter what the mode of natural infection may be, it is obvious that the bacillus of abortion shows a predilection for the mucous membranes of the uterus. The organism can be disseminated in a great variety of ways, for it has been found in the afterbirth, the fetus and the vaginal discharges of the aborting animal, all of which serve as modes of spreading the infection. Milk has recently been added to the number of agencies by which the virus is eliminated from the body. Inasmuch as experimental animals, such as guinea-pigs, develop marked pathologic lesions in various organs and tissues when such naturally infected milk is injected into them, one is constrained to inquire into the possible pathogenicity of the *Bacillus abortus* for man. The government experts have appropriately pointed out that the common occurrence of a micro-organism, pathogenic for any species of animal, in an article of food as widely and as extensively used as milk, demands attention. This is the more true because premonitory symptoms of the disease are by no means always observed in the infected cattle, so that there is no occasion to expect any contamination of the milk from them. One is dealing with an organism that has the udders of apparently healthy cows as its normal habitat and which therefore cannot be certainly excluded from the milk no matter how much cleanliness and care are used in its production. The newest data show quite conclusively that the bacillus of contagious abortion of cattle—the organism producing tuberculosis-like lesions in guinea-pigs—may be eliminated continuously for years in the milk of infected cows that no longer abort. Although

1. Infectious Abortion of Cattle and the Occurrence of its Bacterium in Milk, Twenty-Eighth Ann. Rep. Bur. Animal Ind. for 1911, Washington, 1913, p. 137.

nothing is yet known about the possible effects of this infective agent on human beings, we can scarcely afford to assume that they are not affected by an organism which causes progressive lesions of a serious character in experimental animals. Chief Melvin points out that this bacillus may prove to be another source of danger in the use of raw milk as food and may furnish an additional reason for taking advantage of the safeguard afforded by the proper pasteurization of all milk before it is used as a food.

The animal diseases, such as the one here detailed, may concern the physician either directly as a possible source of human disorder, or indirectly in that they curtail the food-supply or the comfort and convenience of mankind. It is apparent, therefore, that we must be alive to every new finding in the field of veterinary pathology and the possibilities of its hygienic relations to mankind. Cow's milk has been assailed as the distributor of so many forms of human ills that one hesitates to entertain new charges against it until they are firmly substantiated. Nevertheless, sentiment must be overruled where hygiene reigns; and in the long run the frank recognition of hidden dangers or even harmful possibilities, such as those for which the bacillus of contagious abortion may become responsible, inevitably leads to preventive measures that are worth while from the point of view both of public health and of the economy of food production.

ALCOHOLIC FERMENTATION WITHOUT SUGARS

The production of ordinary alcohol, by the process of fermentation with yeast, out of substances other than sugars marks an event in science that deserves more than passing notice.[1] The subject of alcoholic fermentation has attracted the attention of chemists and biologists for generations. The outcome of the action of yeasts on sugar has long been expressed by an equation which indicates in chemical nomenclature: sugar = carbon dioxid + ethyl alcohol. As a matter of fact, neither of these end products of the reaction generated by yeast is present as preformed complexes in the sugar molecule. To any one with a chemical training it is apparent, therefore, that no simple disintegration of sugar by yeast will effect the familiar fermentation phenomena, including the rapid evolution of gaseous carbon dioxid. Indeed, the conviction has long gained ground among the initiated that instead of being eminently simple the fermentation processes are highly complex and that there must be one or more intermediary products in the transformation of sugar into the characteristic end-results of fermentation.

The epoch-making discovery of Buchner that alcoholic fermentation is quite as much an enzymatic process as the familiar transformations accomplished by the long-known digestive enzymes was significant. It showed that the reaction can, in a sense, be divorced from the actual life process of the yeast cell. The non-living, unorganized enzyme, zymase, can induce the typical gas production that had hitherto been inseparably associated with the continuance of organic existence in the yeast. Nevertheless this interesting fact has in no way served to solve the fundamental problem of fermentation, namely, the way in which its final products really are formed.

The researches of recent years have brought to light many new elucidating facts. It is not yet generally understood that prior to its fermentation sugar unites with phosphoric acid in fermentative mixtures; and in view of this important discovery of Iwanoff it is not sugar at all, but rather the phosphoric acid ester of sugar, that constitutes the primary object of attack by the yeast enzymes. A new importance is thus given to the compounds which accompany the pabulum of fermentation, and we begin to understand why the reaction has been so difficult to demonstrate when pure chemicals were used in place of the complex "mashes" of the industries.

There are various circumstances which point to the probability that sugar is first split into smaller molecules before it is subjected to the ultimate fermentative change itself; that is, the production of alcohol and carbon dioxid compounds with three carbon atoms, in place of the six of the fermentable sugars ($C_6H_{12}O_6$) have suggested themselves as the probable intermediate steps, for diverse chemical and biologic reasons. Lactic acid, $C_3H_6O_3$, and glycerol, $C_3H_8O_3$, are illustrations of such possibilities that have actual physiologic associations and are known to make their appearance under biologic conditions. Without detailed reference to others like glycerose, glycerol aldehyd, acetaldehyd, dioxyacetone, methylglyoxal, etc., all of which have been the subject of discussion, in this connection, we may direct attention to pyrotartaric acid, a compound which gives some promise of revolutionizing our current views of fermentation by yeast. It has been the merit of Neuberg and his co-workers in Berlin to demonstrate that this substance will give rise to carbon dioxid in typical fermentation fashion at once in the presence of yeast, as follows:

$$\underset{\text{Pyrotartaric acid}}{CH_3.CO.COOH} = \underset{\text{Carbon dioxid}}{CO_2} + \underset{\text{Acetaldehyd}}{CH_3.COH}$$

The significance of this reaction lies in the fact that it permits us to understand how an immediate production of gas may ensue from a substance like pyrotartaric acid which can be expected to be produced quite readily from sugar. Acetaldehyd, a product of the "sugar-free fermentation," is very closely related to ethyl alcohol. Neuberg has now actually succeeded by special devices in inducing a liberal formation of alcohol from pyrotartaric acid through the direct intermediation of yeast. Whether this takes place through the acetaldehyd stage or through some other more direct reaction is not yet ascertained.

1. For details of this success see Neuberg, C., and Kerb, J.: Ueber die Vorgänge bei der Hefegährung, Berichte d. Deutsch. chem. Gesellsch., 1913, xlvi, 2225; Biochem. Ztschr., 1913, liii, 406.

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It is enough to point out here that we are rapidly approaching a stage in the study of alcoholic fermentation in which each step can be understood and interpreted in terms of organic chemistry. The mystery of the yeast cell's behavior toward sugars is clearing up. Pyrotartaric acid looms up as something of biologic import. With the zymase of Buchner we may now align the new enzyme, carboxylase, of Neuberg. We begin to acquire light on how the six-carbon sugar chain may be torn apart into fragments of three, two and one carbon atoms. There are interesting prospects ahead, and they awaken the enthusiasm of students of medicine, because many of the life-phenomena of man have from time to time been interpreted by analogy with those of fermentation.

THE ENERGY TRANSFORMATIONS IN INDIVIDUAL ORGANS

Recent years have witnessed a greatly increased interest in what may be called the details of metabolism. Statements in regard to the energy changes of the body as a whole and the story of the gross nutritional needs of the organism have become familiar, if not commonplace. In a supplementary way attention is now becoming centered more and more in the chemical activities of localized parts of the body, and in the metabolic performances of organs and tissues; in the discovery of their specific peculiarities of function that may be quite as unique and distinguishing characteristics as are the recognized individualities of gross or minute structure. The progress which is bound to ensue from this newer point of view will serve to dispel much that has been vague in the domain of intermediary metabolism. We shall know more accurately and correctly what the special nutritive needs of organs like the liver, kidneys or brain are; to what extent their activities tax the energy capacities of the body which contains them, and precisely how their requirement for energy is to be satisfied in order to retain unimpaired physiologic efficiency. Furthermore, it is only a logical step to extend the inquiry and apply the methods of solution to the problems of pathologic function. It is time that some rational basis for the hitherto loosely employed statements about the "overworking" of one organ or another —the kidney, for example—be forthcoming.

In the beginnings which have been made in this new field of investigation various methods of research have contributed useful help. Organs of the higher animals and man are now successfully isolated from the body and "kept alive" by perfusion methods. The present generation of physicians can recall the older classic illustrations of such extracorporeal maintenance of function. The frog's heart and the muscle-nerve preparation from the leg no longer stand out as the conspicuous illustrations of isolated function. Almost every larger organ has been isolated and "perfused" with success. Again, the metabolism of the body as a whole can be studied before and after extirpation of the organ that is under investigation, and the differences thus brought out may be interpreted in relation to the part involved. The estimation of the differences in the quality of the blood before entering and after leaving an organ—a method especially developed in England—furnishes valuable data as to what transpires in its cells. Furthermore, the calorimetry of isolated tissues has recently been developed into a successful technic, so that the energy exchanges can be measured at the very seat of their genesis; and thus the calorie business of the entire individual can be investigated in the different departments, so to speak, that comprise our energy-transforming organization.

Precisely as the "heart-disease" of old is being subjected to careful analysis and classified into categories in which functional incoordination of beats, disease of localized muscular bundles or nervous transmission centers, vascular sclerosis or obstruction, myocardial incapacity, and what not, are all differentiated in diagnosis, so metabolism will soon no longer be the vague generalization that it has been. The newer devices of investigation and the special terminology employed have not yet become familiar to the ears of the clinician; but in time they will be mastered just as the findings of the electrocardiograph, of anaphylaxis, and of vaccine therapy and immunity are gradually being incorporated into our routine experiences.

By way of illustration of what is being accomplished in this field we may refer to a series of investigations conducted in Tangl's laboratory in Budapest.[1] By direct calorimetry Tangl[2] has estimated the work of the healthy kidneys, that is, the amount of chemical energy which is converted by the functioning of these organs into other forms of energy. In the animals investigated by him it amounts to about 8 per cent. of the total energy exchange during the resting condition. Here, then, is a concrete expression of the degree to which these secreting glands participate in the body's need for energy supplies. By way of contrast it is interesting to refer to the work of the spleen, which represents an organ entirely different in type from the kidneys. Extirpation of the spleen brings with it no appreciable, or at any rate no considerable, alteration in the respiratory metabolism of the individual[3]—a fact which we interpret to signify that the function of the spleen is of a decidedly different order from that of secreting structures of glandular nature.

The outcome of experiments under conditions of defective kidney function is very striking.[4] The work of the impaired, but still functioning, kidney is greater than that of a corresponding normal organ; it requires

1. A group of interesting papers will be found in the Biochem. Ztschr., 1913, liii, No. 1/2.
2. Tangl, F.: Calorimetrie der Nierenarbeit, Biochem. Ztschr., 1913, liii, 36.
3. Verzár, F.: Die Grösse der Milzarbeit, Biochem. Ztschr., 1913, liii, 69.
4. Csernu, S., and Kelemen, G.: Grösse der Arbeit kranker Nieren, Biochem. Ztschr., 1913, liii, 41.

more oxygen and produces more carbon dioxid waste. In actual figures, an increase in energy transformation amounting to over 50 per cent. has been ascertained in some stages of nephritis. This increase in expenditure of energy under which the diseased kidney performs its work persists only so long as urine is abundantly secreted. When conditions arise in which patho'ogic defects have progressed to the point of partial suppression of the urine flow or to complete anuria, the kidney metabolism is no longer on a heightened plane. It may now even sink to levels below the normal for health. In other words, the increased energy expenditure of the diseased kidney ceases as soon as the power of secretion is profoundly impaired or lost.

Observations like the foregoing serve to place the energy aspects of the pathology of metabolism on a more comprehensible basis. They give an insight into kidney functions which no amount of microscopy or urinary analysis can replace.

Current Comment

SPECTACLES AND THE PANAMA EXPOSITION

The ubiquitous optician and the spectacle-vender have not overlooked the opportunity which the numerous world's fairs in recent years have afforded them of plying their trade. Like the lemonade and peanut vender at the county fair they have not failed to see that in these expositions lie chances for reaping a golden harvest on a widely expanded scale. It is understood that the management of the Panama Exposition at San Francisco intends to grant a spectacle concession. The possibility that harm to the eyes of those who purchase their wares will be caused through the totally unscientific work of these spectacle-venders has either not been understood by the exposition management or the swelling of the revenue has been allowed to outweigh any such considerations. In referring to this, *Collier's Weekly* says:

> Is the Panama-Pacific Exposition of 1915 going to taint itself at the outset by an alliance with quackery? Thus it would appear from the announced purpose of the management to offer over the counter the spectacle-selling concession of the enterprise. Protests, based on the ground that such procedure would be prejudicial to the eyesight of the public have thus far made no impression on the guiding spirits of the function as compared with the $60,000 or so to be gained.

The reply of President Moore of the exposition to one of these protests is: "If an official concession is granted at the exposition, it will only be to some business firm of high standing." This leads *Collier's* to remark:

> High business standing, doubtless. But of what professional standing or skill? Do the officials hold that protection of their guests' vision is a negligible consideration? Glasses fitted on purely concessionary or business principles may well ruin any eyesight. . . . The managers, on their own showing, take a purely commercial view of the transaction and utterly ignore the fact that better vision is not merely a matter of barter, but of professional skill and service. . . . Impaired vision for thousands of guests would be a dire aftermath to their fine enterprise.

The commercializing of a great exposition held in commemoration of the completion of one of the greatest works undertaken by men should at least not involve the danger of irreparable injury to the public who participate in it.

As *Collier's* says, "Obviously, to adopt the method of selling this permit to the highest bidder is to invite quackery," and quackery it will be whether the price be high or low.

THE PRICE OF RADIUM PREPARATIONS

The industrial journals report a marked reduction in the prices of radium preparations of late.[1] The total production of radium bromid per year is between 2 and 3 gm. In 1911 the radium preparations produced by the Austrian Radiumpraeparatefabrik amounted to 14.1 gm., containing 2.647 gm. of pure radium chlorid, valued at $214,900. Early in the present year radium bromid sold at $105 per milligram in Germany. In July, however, sales were made in Vienna at about half that price. As a reason for this decrease the fact is advanced that mesothorium, as well as radiothorium, has begun to be employed in place of radium, especially in medicine. Mesothorium more active than radium can be obtained at a cost of only $32 per milligram. Although the life of mesothorium is short, by mixing it with radium salts a long-lived preparation is said to be obtained.

THE FLUELESS GAS-HEATER

At this time of the year, when many feel that it is not cold enough to use the general heating-system of the house but is too cool to be entirely without heat, the use of portable gas- or oil-heating apparatus is a great convenience. Cleanliness and comparatively low cost of operation make this type of heating deservedly popular. Unfortunately many of these heaters are used without a flue-pipe to carry off the products of combustion. The use of such heaters is to be deprecated. This is especially true of those devices of low efficiency that make it practically imperative that the doors and windows be kept closed if the object sought—that of raising the temperature of the room—is to be attained. These heaters not only vitiate the air by consuming the oxygen and pouring forth the products of combustion into the room, but also put a premium on insufficient ventilation. The current issue of a high-class monthly magazine carries a full-page advertisement of a gas-heater that is specifically recommended for use in the children's play-room. It is advertised as "the ideal heat for the nursery," and in heavy type the claim is made that it "will not vitiate the air." Such advertisements are not only fraudulent; they are also dangerous. There may be times when one is willing to sacrifice health for comfort for a short time; when an increase of temperature in the room is sought even at the expense of vitiated air. When this is done with a full knowledge of possible dangers, it may not be too severely criticized. But to lead people to believe that any room can be heated healthfully for any length of time by means of flueless gas- or oil-heaters is dangerous

1. See, for example, Jour. Ind. Eng. Chem., September, 1913, p. 780.

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doctrine. An efficient gas- or oil-heater with a flue attachment is an admirable piece of household apparatus; a flueless heater—except for the most temporary of uses, and then used with a full knowledge of the dangers involved—is an abomination.

DOES MILK CONTAIN LECITHIN?

The group of lipoid substances known as phosphatids or lecithins has long attracted the attention of physiologists because these fat-like compounds, containing both nitrogen and phosphorus in organic combination, appear to be a constant component of animal cells. They have formed a topic for discussion in connection with a great variety of biologic phenomena: absorption, growth, hemolysis, etc., in which phosphatids are currently believed to take a characteristic and more or less indispensable part. It is only a step further to inquire whether these compounds need to be furnished in the dietary or whether they can be constructed *de novo* as needed by the organism. Inasmuch as milk is the prominent if not the exclusive article of diet during an important period of growth, the question as to its content of phosphatids early received consideration. The very fact that the possible occurrence of lecithins in milk is debated is of itself suggestive that the quantity involved must at best be very small. The chemical methods for the detection of phosphatids are not ideal, to say the least. It is for this reason, doubtless, that some investigators, like the late Waldemar Koch, have affirmed, and others, like Schlossmann, have denied that milk contains them. The latest contribution,[1] based on apparently careful investigation indicates the complete absence of these ether-soluble phosphorus compounds in milk. If others have found positive results they are presumably due to substances other than lecithins of which milk may, for the present at least, be regarded to be devoid.

THE OCCURRENCE OF ALCOHOL IN THE TISSUES

Through the activity of the yeast-cell in the presence of glucose alcohol is formed. Is there anything analogous to this in the case of the animal cells that make up our tissues and organs? This question has often been debated; and the suggestion of close chemical relations between the fermentation initiated by yeast and certain aspects of the metabolism of carbohydrates in the animal body recurs from time to time. The possibility is further strengthened by the fact that muscle from freshly killed animals has more than once been reported on good authority as yielding traces of ethyl alcohol by distillation. The immediate explanation ventured has been that alcohol may be formed by the agency of micro-organisms in the alimentary tract. It may then be absorbed and distributed through the organism so that there need be no surprise if residual traces can be detected in the tissues at times. A. E. Taylor of the University of Pennsylvania has approached this phase of the theory advanced by examining the tissues of an animal in which bacterial processes within the digestive tube were excluded by complete removal of the tract. The operation is necessarily a difficult one; the circulation of the pancreas and the integrity of this gland must be maintained, and the animal must be kept alive long enough to permit the combustion of any traces of alcohol that might have been absorbed from the intestine prior to the operation. Even after this precaution small amounts of alcohol were still obtainable from the fresh tissues.[1] The implication thus obtained that alcohol may actually arise in metabolism offers nothing out of harmony with known biochemical fact and theory. It merely indicates one of the numerous possibilities, like lactic acid, formic acid, etc., exemplifying intermediary stages in the transformation of glucose by living organisms.

SANITARY MOTION PICTURE THEATERS

The majority of motion picture theaters are made by hastily equipping some store room ill suited to this purpose. The daily attendance in motion picture theaters in Chicago alone is estimated as close to 500,000. The total number of people throughout the country interested in this tabloid type of drama is enormous. In most instances the proper ventilation of such playhouses has been entirely neglected. Continually changing crowds of people are found in these places of amusement from 11 a. m. to 11 p. m. To neglect such a necessary question as that of ventilation and other sanitary measures in public places is almost criminal. In Chicago the Board of Health has undertaken an investigation of these theaters and is issuing certificates to the adequately equipped houses. Tests have been made by the ventilation department of the Board of Health which show that the air of a properly ventilated theater yielded but five colonies of bacteria on an exposed Petri plate, whereas, the air of an unventilated theater gave 250 colonies. The *Bulletin* says:

> "We shall go on fighting this menace until it is completely eliminated. We expect plenty of opposition from the short-sighted and ignorant classes of theater-owners, but the health interests of the many must eventually triumph over the money interests of the few. We fully recognize that when it's dollars against health it's an uphill fight for health.
>
> "If the people, whose health we seek to conserve, will lend us a fair measure of their moral support the fight will be won quickly.
>
> "Patronize only the properly ventilated theater.
>
> "Look for the Health Department's certificate."

FAITH WITHOUT WORKS

The Chicago newspapers recently gave space to the case of a young man who died under somewhat mysterious circumstances. After an all-night ride in taxicabs, the victim, who was a married man, reached home at seven o'clock in the morning half conscious. He died the following night. The coroner's autopsy indicated that death resulted from the effect of a drug. The wife testified that she realized that her husband was "dopy" when he reached home; she thought he was ill and "sent for a faith practitioner." When the "practitioner" arrived, the young man was totally unconscious and remained so

1. Njegovan, V.: Enthält die Milch Phosphatide? Biochem. Ztschr., 1913, liv, 78.

1. Taylor, A. E.: The Derivation of Ethyl Alcohol Contained in the Muscle, Jour. Biol. Chem., 1913, xv, 217.

until his death. From the newspaper accounts, then, it appears that a man suffering from the effect of some drug was given no treatment except that administered by a "faith practitioner." It is difficult for rational beings to understand the mental vagaries of those who place their reliance on "faith" practitioners. Had the young man in question been the victim of an automobile accident and been pinned beneath his machine, it is hardly conceivable that even a Christian Scientist would have expected the man to recover under "mental treatment." The first thing done would have been to remove the machine. As the unfortunate man had a poison in his body instead of an automobile on top of it, it seems to have been taken for granted that a "faith practitioner" was all that he needed. If the results of vicious fallacies were visited only on those that hold them, there would be nothing to say. Unfortunately, it is one of the conditions of life that suffering comes to the helpless and dependent almost as frequently as to those who deserve to suffer.

Medical News

CALIFORNIA

Personal.—Dr. H. G. Brainerd, Los Angeles, has been appointed a member of the commission to select a site and approve plans for the construction of a new state hospital in Southern California.

Physicians' Casualty Association Organized.—The Medical Men's Casualty Association has been incorporated with headquarters at Los Angeles. The following are directors: Drs. Edward J. Cook, A. D. McLeod, C. D. Hone, Francis E. Brown, Harry M. Voorhees, Harry G. McNeil, and Frank E. Detling.

Tuberculosis Camp.—San Diego has selected the location for a tuberculosis camp to which tuberculous patients who are wards of the county will be removed from their present quarters in the county hospital. The camp is to cost about $10,000 for its establishment and will accommodate about twenty-five patients.

Dispensary Opened.—The municipal nursing commission of Los Angeles has taken steps toward the opening of a free dispensary to be under the direction of the College of Medical Evangelists. The dispensary is to be under the supervision of the Health Commissioners and a nurse is to be on duty from 1 to 3 o'clock every afternoon.

Hospital Notes.—The cornerstone of the new St. John's Hospital at Oxnard was laid with impressive ceremonies September 23.——The contract has been let for the erection of a county hospital for Orange County near Santa Anna, at a cost of $44,944. The building is to be a two-story and basement structure, 48 by 92 feet, of reinforced concrete construction. ——It is announced that the new San Francisco Hospital will be completed and ready for occupancy by November 1. The buildings now being erected are to complete the group of tuberculosis and infectious disease buildings.——Mount Zion Hospital is being erected at the corner of Post and Scott streets, San Francisco, at a cost of $300,000.

COLORADO

Personal.—Dr. L. W. Ely, Denver, has accepted the chair of orthopedics in the Leland Stanford University, San Francisco. ——Dr. Ella H. Griffith, Denver, has won her suit for $3,000 against the estate of the late Hugh Butler for service rendered his deceased wife.

Reorganization of Medical School.—Under the reorganization of the School of Medicine, University of Colorado, the medical senate has been done away with. The executive committee consists of the dean, Dr. W. P. Harlow, chairman, and Drs. O. M. Gilbert, Boulder; Robert Levy, Edward Jackson, and W. A. Jayne. This committee has appointed three standing committees, the chairman of each of which is a member of the executive committee: hospital committee, W. A. Jayne; dispensary committee, Dr. Robert Levy; course committee, Dr. Edward Jackson. The dean is an ex officio member of all standing and special committees. The faculty (meaning the full professors) has been divided into the following groups: Surgery, Drs. R. W. Corwin, W. B. Craig, Leonard Freeman, Luman M. Giffin, H. G. Harvey, C. B. Lyman, George B. Packard, C. A. Powers, and E. J. A. Rogers; medicine, Drs. J. R. Arneill, S. G. Bonney, G. H. Cattermole, O. M. Gilbert, J. N. Hall, M. Kleiner, W. P. Rothwell, Henry Sewall, W. H. Sharpley, C. F. Shollenberger, C. B. Van Zant, and H. B. Whitney; eye, ear, nose and throat, Drs. Wm. C. Bane, Melville Black, John Chase, D. H. Coover, Edw. Jackson, J. M. Foster, Robert Levy; obstetrics and gynecology, Drs. T. M. Burns, C. S. Elder, W. A. Jayne, F. H. McNaught, and T. E. Taylor; fundamentals, Drs. C. T. Burnett, F. G. Byles, John Ekeley, C. Gillaspie, W. C. Mitchell, A. R. Peebles, E. B. Qneal, J. C. Todd, H. E. Washburn, and R. C. Whitman; specialties, Drs. S. B. Childs, W. H. Davis, A. J. Markley, G. H. Stover, G. E. Neuhaus J. H. Pershing, H. T. Pershing, and N. Weist.

CONNECTICUT

New Officers.—Meriden City Medical Society, September 11: president, Dr. M. J. Sullivan (reelected); secretary and treasurer, Dr. David P. Smith.

Hospital Dedicated.—The new buildings of the Stamford Hospital were dedicated September 20. The hospital represents an outlay of $400,000. The buildings stand on a site of 12 acres donated by Albert Crane, and are of brick construction and fireproof, and include an isolation hospital for communicable diseases.

GEORGIA

Antituberculosis Association Receives Charter.—The Atlanta Antituberculosis and Visiting Nurses' Association was granted a charter September 5.

Medical Department Abandoned.—At a meeting held in Atlanta, September 6, by the management of the Southeastern University, it was decided to abandon at present the idea of opening a medical department of the institution this fall.

Personal.—Dr. Louis Hollander, Atlanta, has been elected superintendent of the Battle Hill Tuberculosis Sanatorium, Atlanta.——Dr. L. J. Chedel, city physician of Savannah, was seriously injured in an automobile accident September 19.

Information About Tuberculosis.—The State Board of Health has issued an educational bulletin telling of the history, the means of prevention, and the cure of tuberculosis. The board will examine sputum free of charge in its laboratory in Atlanta.

Medical Examiners Appointed.—Governor Slaton on September 24, appointed the following members of the Board of Medical Examiners: Drs. Jarrett W. Palmer, Ailey, Francis M. Ridley, La Grange, C. T. Nolan, Marietta, F. D. Patterson, Cuthbert, representing the regular school; Drs. C. M. Paine, and R. E. Hinman, Atlanta, representing the homeopathic school, and Drs. A. F. White, Flovilla, and A. Fleming, Waycross, representing the eclectic school.

ILLINOIS

Personal.—Dr. John Ross, Pontiac, has succeeded Dr. James A. Marshall as physician to the Illinois State Reformatory. ——Dr. Isaac Moore, Alton, is reported to be seriously ill as the result of a cerebral hemorrhage.

Tuberculosis Cottages to Be Built by County.—Vermilion County has arranged to provide for its tuberculosis patients by the erection of two cottages at the County Home. The buildings are to be completed before December.

Anti-Tuberculosis League Organized.—At a meeting held in Mendota recently, the LaSalle County Anti-Tuberculosis League was organized. Drs. E. P. Cook, Mendota, Benjamin J. Nauman, Peru, and William Schoenneshofer, Lostant, are vice-presidents of the league.

Chicago

New Year of the Medical Women's Club.—The Medical Women's Club held its first meeting and dinner of the year at the Chicago College Club, October 8.

Out-Door School Plan.—An out-door school for children affected with tuberculosis is to be erected on the roof of the Parish House of Grace Episcopal Church.

New Psychopathic Hospital.—The Cook County Detention Hospital has been dismantled to make room for a new psychopathic hospital with accommodation for more than two hun-

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dred patients. For the present, patients are being cared for in a building across the street from the old detention hospital.

Personal.—Dr. C. St. Clair Drake has been elected president of the Town and Country Club.——Dr. Ludwig Simon sailed from San Francisco, October 7, on a six months' trip around the world.——Dr. and Mrs. E. Fletcher Ingals and daughter and Dr. and Mrs. G. E. Fosberg have returned from Europe.——Dr. B. M. Linnell fractured his arm while cranking his automobile, October 6.

American College of Surgeons.—Dr. Franklin H. Martin, general secretary of the American College of Surgeons, asks us to announce that on the evening of Nov. 13, 1913, will be held the first formal meeting for the conferring of fellowships on the members of the American College of Surgeons. Sir Rickman Godlee, the president of the Royal College of Surgeons of England, will deliver the principal address, and Dr. J. M. T. Finney the presidential charge.

Clinical Congress of Surgeons of North America.—The fourth annual session of the Clinical Congress of Surgeons of North America will be held in Chicago, Hotel LaSalle, November 10 to 15. On each evening except Saturday, scientific sessions will be held. On Tuesday, Thursday and Friday evenings there will be separate meetings for those specially interested in surgery of the eye, ear, nose, throat and mouth. Prominent men from abroad have been invited. The preliminary program may be had from the general secretary, Dr. Franklin H. Martin, 31 N. State St., Chicago.

MARYLAND

Births Exceed Deaths.—Interesting statistics in the report of the Baltimore Health Department for the last month show that the births exceeded the deaths by 432, the deaths totaling 792 and the births 1,224, the largest number of any month this year. On the basis of an estimated population of 575,204, the percentage of deaths was 16.45 and that of births 25.45 per thousand. There were 526 marriages reported.

Centennial of Foundation of Library.—The beginning of the present term of the Maryland University is the one hundredth anniversary of the founding of the library by Dr. John Crawford. The library now contains 18,000 volumes, among them some rare editions, especially those bequeathed by Dr. Crawford, who was probably the first physician to arrive at any remarkable results in regard to the conveyance of contagious diseases by mosquitoes.

Report of Mental Hygiene Committee.—The Mental Hygiene Committee of the Maryland Psychiatric Society, Dr. Adolf Meyer, chairman, held a meeting on October 7 and received the report of Dr. W. B. Cornell, the executive secretary. In the nine months of the committee's existence, over 200 cases have been handled. The work of the committee deals both with preventive and after-care cases and is in close touch with all social service agencies, as well as all the hospitals for the insane in the state.

Baltimore

Personal.—Dr. J. Whitridge Williams has returned from Watch Hill, R. I., where he spent the summer.——Drs. Lewellys F. Barker, Thomas H. Buckler and William H. Welch, have returned from Europe.——Dr. Brice W. Goldsborough recently underwent an operation at the Hervar Kelley Sanatorium.

Ask Increased Appropriations.—Mercy, Maryland General, St. Joseph's, St. Agnes', Franklin Square and Maryland Homeopathic hospitals, have applied to the Board of Estimates for an increased appropriation from Baltimore City. The money appropriated is for the maintenance and treatment of "free patients," many of whom have to be turned away for lack of funds.

NEW YORK

State to Build Antitoxin Laboratory.—The State Health Board has decided to purchase property at Guilderland, near Albany, on which to erect an antitoxin laboratory for the State Department of Health.

Want Health Home Kept Open.—An effort is being made to raise funds sufficient to keep the Health Home for Working Girls at Santa Clara in the Adirondacks open during the winter months. Many girls suffering from tuberculosis have appealed for care until late into the fall.

New Officers.—Medical Society of the State of New York, Seventh District Branch, at Sonyea, September 25: president, Dr. William T. Shanahan, Sonyea; secretary, Dr. John F. Myers, Sodus.——Eighth District Branch: president, Dr. Arthur G. Bennett; secretary, Dr. Carl Tompkins, both of Buffalo.

Hospital News.—The Montgomery County Tuberculosis Hospital near Amsterdam was officially opened to the public September 20.——The contract for building the Children's Tuberculosis Hospital at Buffalo has been awarded, and the acting mayor has approved the action of the common council regarding the issuance of bonds.——It has been decided not to open the winter tuberculosis camp near Dunkirk this winter.

Memorial Meeting of Faculty.—At a meeting of the faculty of the College of Medicine of Syracuse University September 25, Dr. A. B. Miller read a memorial of Dr. Albert S. Hotaling, and Dr. Henry L. Elsner eulogized the work of the late Dr. Nathan Jacobson.——Dr. Eugene W. Belknap has been nominated professor of obstetrics, vice Dr. Hotaling, and Dr. L. C. Ransom has been nominated instructor in clinical chemistry and microscopy.

Personal.—Dr. William D. Johnson, Batavia, fell from a ladder September 24, breaking his left leg just above the ankle.——Niagara Falls Academy of Medicine gave a dinner September 25 in honor of Dr. Carl G. Leo-Wolf, who is about to leave for Germany. Dr. Leo-Wolf was presented with a black walrus traveling-bag.——Dr. John R. Ross of the St. Lawrence State Hospital, Ogdensburg, has been appointed first assistant physician at the Dannemora State Hospital.

New York City

Leaves Large Estate.—The will of the late Dr. Oliver Livingston Jones was filed for probate September 11. It disposes of an estate valued at $10,000,000.

Evolution.—While the registration at Columbia University is 200 in excess of that of last year, being 5,930, the School of Medicine has only 289 students as compared with 302 for 1912.

Issuance of Birth Certificates.—During the eight days immediately preceding the opening of the school term, the Bureau of Records of the Department of Health issued 20,834 copies of certificates of birth to children about to enter school.

New Columbus Hospital.—Plans for the new Columbus Hospital have been approved by the State Board of Charities and the Building Department and the new building on East Twenty-Sixth Street will be begun in a few weeks. The building is to be ten stories high, will accommodate 300 patients and will cost $150,000.

Infant Mortality Rate Again Lowered.—According to the records of the Babies' Welfare Association, the last two weeks in September show a considerable decrease in infant mortality as compared with the corresponding period of last year. During the last two weeks in September there have been seventeen fewer deaths than occurred during the corresponding two weeks of 1912. Up to this time there have been 358 fewer deaths among infants this year than during 1912.

Harvey Society Lectures.—The first lecture of the ninth course of Harvey Society lectures was delivered on October 4 by Prof. A. D. Waller, University of London, entitled "A Short Account of the Origin and Scope of Electro-Cardiography." The second lecture of the course will be delivered on the evening of October 18 at the New York Academy of Medicine by Prof. Adolph Schmidt of the University of Halle on "Severe Anemia in Gastro-Intestinal Diseases."

East Side Blames City for Typhoid Epidemic.—The East Side Protective Association held a meeting on September 27 at which ways and means of stemming the tide of typhoid fever were discussed. A protest was sent to the mayor demanding a more rigid enforcement of the Sanitary Code. The protest called attention to the fact that fruit merchants feel that fruits unfit for food and other decayed food can easily be disposed of in this district, and that it is the duty of the city to see that the people are protected from the greed that places no value on life.

Personal.—Dr. Lucius W. Hotchkiss met with an automobile accident at Troy Hills, N. Y., on September 28. He sustained a fracture of the arm near the shoulder and a number of severe cuts about the head. His wife and two children, who were with him, were also injured.——Dr. Robert L. Morrison, surgeon-in-chief of the Williamsburg Hospital, and Dr. Emil Boehm, a young surgeon attached to the second division of Bellevue Hospital, are seriously ill with blood poisoning, the result of slight wounds sustained while performing operations.——Dr. Walter Beusel, sanitary superintendent of the Health Department, has resigned.

New Laboratory at Otisville.—The new laboratory at Otisville Tuberculosis Sanatorium has begun its work. Under the direction of Dr. A. McNeil, two bacteriologists, one labora-

tory assistant and two helpers are now engaged in carrying out research work. The two bacteriologists are Drs. H. A. Hatfield and I. Abrahamson. At the present time the refining of antitoxin is being done at Otisville and experimental work in complement fixation in tuberculosis has been begun. The Department of Public Charities has recently placed at the disposal of the Tuberculosis Admission Bureau the use of a commodious omnibus for the transfer of Otisville patients and their baggage from the bureau to the Erie Railroad Depot.

The Cost of Aliens to Bellevue and the Allied Hospitals.—A report recently submitted to the mayor by the commissioner of accounts shows that during the year 1912 there were 57,422 persons treated in the wards of Bellevue and the Allied Hospitals and that an inspection of the records of these patients, in 11,334 cases treated in October, November and December of last year, showed that 671 had been less than three years in this country. If this ratio were applied to the three years, 1910, 1911 and 1912, approximately 9,879 aliens not citizens of this country were treated without charge. It is estimated that the cost for such treatment amounted to $208,446. The inclusion of aliens who have been in this country for more than three years would considerably augment this sum. The board of trustees of Bellevue and the Allied Hospitals recommend that negotiations be opened with the proper authorities at Washington with a view of relieving New York City from the unjust share of this federal burden and that a history be prepared of each dependent alien in these institutions with a view to deportation if the circumstances warrant such action.

NORTH CAROLINA

Will Surrender Lease of Hospital.—Dr. Eugene M. Yount, Statesville, announces his intention of surrendering the lease of Billingsley Hospital to the municipality, January 1 next. It is expected that the city will reopen the institution as a general hospital, open to the profession and public.

Personal.—Prof. William DeB. MacNider, professor of pathology in the University of North Carolina, was the guest of honor at a banquet of the Mecklenburg County Medical Society in Charlotte, October 3, at which he gave an address embodying the results of his recent research on renal circulation and its relation to the diseases of the kidney.

Annual Examination of Policy Holders.—The Southern Life and Trust Insurance Company, Greensboro, has announced a permanent policy of offering each of its policy-holders an annual examination made by physicians from the home office to enable the insured early to apprehend any malady and thus be better enabled to prevent the development of disease or to check it in an early stage.

Typhoid in Charlotte.—On account of the report of the city health officers of Charlotte that 74 per cent. of the cases of typhoid fever in the city this season had occurred in persons using open wells and not city water, and the report that more than 90 per cent. of the specimens of well water examined had shown more condemnation than the raw water from the Catawba River, the Charlotte Board of Health has ordered disinfection and closing of the open wells in the city.

Hospital Staff Elected.—The board of managers of the Mission Hospital, Asheville, announces that the following staff has been elected: Drs. M. H. Fletcher, Charles S. Jordan, Lewis B. McBrayer, Marion C. Millender, Porter B. Orr, Paul H. Ringer, Arthur T. Pritchard, Joseph B. Greene and Arthur W. Calloway. Drs. Lewis W. Elias, William P. Herbert, O. F. Eckel, J. L. Adams, Franklin W. Griffith and Martin L. Stevens were elected as the adjunct staff. Dr. William L. Dunn was elected dean of the Nurses' Training School.

PENNSYLVANIA

New Officers.—Tri-County (Dauphin, Lebanon, Lancaster; Fourth Censorial District) Medical Society, at Lancaster, August 28: president, Dr. Joseph R. Beckley; secretary, Dr. George R. Pretz, both of Lebanon.

Small-Pox at Coatsville.—As the result of a visit of a traveling salesman for a brewery firm, suffering with small-pox and mingling with many people, nine families of Coatesville and Parkersburg have contracted the disease. Citizens of both towns have been advised to be vaccinated.

Personal.—Dr. Harry B. Burns has succeeded Dr. E. R. Walters as Director of Public Health of Pittsburgh. Dr. Walters has been appointed delinquent tax collector of Allegheny County.——Dr. Watson L. Savage, director of physical training in the public schools of Pittsburgh, has resigned to take charge of the New York Normal School for Physical Education.——Dr. Charles M. Strickler, Lebanon, is seriously ill with peritonitis.——Dr. George Hay, city physician of Johnstown, is ill in the municipal hospital with scarlet fever.——Dr. J. K. Weaver, Norristown, has been elected surgeon-general of the Grand Army of the Republic.——Dr. Charles W. Youngman, Williamsport, has been elected president of the Antees Fort Memorial Association.——Dr. John C. Price of Scranton, Pa., has been appointed chief medical inspector of the Department of Labor and Industry.

Philadelphia

Additions to Hospital.—Extensive additions are shortly to be made at St. Mary's Hospital, which will more than double the capacity of the institution.

Free Clinical Courses.—The Hughes-Wilson courses on the heart and lungs, given annually at the Philadelphia Hospital, began September 29. This course is open to the medical profession without charge.

Baby Show at City Hall Closes.—The baby-saving show, which for the last four months has been on exhibition to the public at City Hall, closed October 2. Since the opening, there were more than 400,000 visitors.

Physical Defects of Schoolchildren Costly.—According to statistics compiled by Dean E. C. Kirk, of the University of Pennsylvania Dental Department, lack of attention for schoolchildren costs Philadelphia $130,000 yearly.

New Superintendent.—George G. Signor, for eight years superintendent of the Medico-Chirurgical Hospital, has resigned to take charge of the Eastern Pennsylvania State Institute for the Care of Feeble-Minded and Epileptics, Pottstown.

Eye Dispensary at School.—A branch of the eye dispensary of the Philadelphia Department of Public Health and Charities for the examination and treatment of the eyes of schoolchildren has been established at the Southwark School, and is in charge of Dr. W. J. Ryan.

To Raise Fund for West Chester Hospital.—Officials of the Chester County Hospital have inaugurated a campaign to raise $80,000 for the erection of additions to the present institution. The fund will be used to erect and equip a new and modern operating room, power house and laundry, sun parlors and diet kitchens.

New Children's Hospital.—Work was begun September 29, on the foundations for the first of the group of buildings to be constructed at Eighteenth and Fitzwater Streets for the Children's Hospital. This will be the dispensary, and it will be at the northeast corner of Eighteenth and Fitzwater Streets. This new group of buildings will take the place of the present Children's Hospital on Twenty-Second below Walnut Street, which has been outgrown. They will occupy the site of the old Williams lumber yard on Eighteenth, from Fitzwater to Bainbridge Street, and the houses 1715 to 1721 Fitzwater Street.

Typhoid Epidemic Not Abated.—There is no abatement in the epidemic of typhoid fever, the number of new cases reported during the week reaching 54, an increase of 11 over the previous week. George C. Whipple, professor of Sanitary Engineering at Harvard University, and F. Herbert Snow, chief of the sanitary engineering department of the State Board of Health, began investigations here on September 29. The United States Health Service is also taking a part in the investigation and Dr. W. G. Stinson, U. S. P. H. S., together with Chief John A. Vogelson, of the Bureau of Health, and Carlton A. Davis of the Water Bureau, examined the river boats and piers on October 1.

Personal.—Dr. Robert C. Parish has been appointed medical supervisor of public schools vice Ralph C. Spangler, resigned.——Dr. Morris Jastrow has been invited to give a lecture before the Royal Society of Medicine in London, on "The Medicine of Babylon and Assyria." Jastrow sailed for England, September 27.——Dr. L. B. Moore, ambulance physician at the Presbyterian Hospital, was painfully injured in a collision between the ambulance and a street-car, September 9.——Dr. E. B. Hodge, a member of the visiting staff of the Presbyterian Hospital, Philadelphia, had a narrow escape from death on October 4, when his motor-car was caught between two trolley cars and smashed to pieces on the Chestnut Street bridge. Dr. Hodge was buried beneath the wreckage but escaped with slight bruises.——Dr. George Morrison Coates has been elected surgeon to the ear, nose and throat department of the Pennsylvania Hospital, as a colleague of Dr. Francis R. Packard.

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GENERAL

Special Train to Academy Meeting.—A special train has been arranged for the accommodation of those who wish to attend the annual meeting of the American Academy of Ophthalmology and Oto-Laryngology at Chattanooga. The train will leave Chicago October 24 by way of the Chicago and Eastern Illinois Railroad to Nashville, and the Nashville, Chattanooga and St. Louis Railway to Chattanooga, arriving at 3:42 p. m., October 25.

Railway Surgeons to Meet.—The annual meeting of the National Association of Railway Surgeons will be held at the Hotel Sherman, Chicago, October 15 to 17.——The seventh annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association will be held at the Hotel Pfister, Milwaukee, December 4 and 5.——Dr. John B. Murphy will deliver the oration on surgery, on "Fractures in the Neighborhood of Joints," and Gov. McGovern of Wisconsin will deliver a discourse on the "Workmen's Compensation Act."

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Hospital, Yonkers, $25,000 toward the enlargement fund subscribed by Alexander Smith Cochran.

Mount Sinai Hospital, New York City, $5,000, and Infants Summer Hospital, Lake Ontario, $1,000, by the will of Abram N. Stein.

University Hospital, Philadelphia, $5,000, by the will of Fanny H. Dickson.

Charity Hospital and Episcopal Hospital, Philadelphia, contingent bequests of $25,000 each, by the will of Mrs. Helen E. Payne.

University Hospital, Philadelphia, one-third, and Pennsylvania Epileptic Hospital and Colony Farm in Chester County, two-thirds of a contingent bequest of $150,000 by the will of Mrs. Anna F. Francine.

Wyandotte City (Mich.) Municipal Hospital, the residence of Mrs. Fred Ginzel with the provision that the state will name the institution after her deceased son.

Habnemann Hospital, Chicago, $100,000 for the building fund donated by William Wrigley.

Abington (Pa.) General Hospital, $135,000, donated by George W. Elkins.

Massachusetts General Hospital, Boston, $30,000 for free beds; Childrens Hospital, Boston, $25,000; Convalescent Home of the Children's Hospital, $25,000; Massachusetts Charitable Eye and Ear Infirmary, Industrial School for Crippled and Deformed Children and Boston Asylum and Reform School, Thompson's Island, $10,000 each, by the will of Harriet O. Cruft.

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $180, will be made on July 14, 1914, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be on any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1914. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of the competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned on application within three months after the award. Further information may be obtained on application to Thomas R. Neilson, M.D., Secretary, 19 South Twenty-Second Street, Philadelphia, Pa., U. S. A.

CANADA

Quarantine Building Site Approved.—Dr. F. Montizambert, director-general of public health, while on his annual tour of western Canada, approved of the site for a new quarantine building at the William Head Station at a cost of $45,000.

Epidemic Warning.—The epidemic of infantile paralysis which broke out in Montreal about five weeks ago is now waning. The cases were promptly reported to the medical officer of health. There were about twenty-five cases altogether.

Medical Museum Trip Successful.—Dr. Maude Abbott has returned to Montreal from Italy. As secretary of the International Association of Medical Museums, Dr. Abbott was successful in establishing a branch in Italy. Her visit to Europe extended over three months.

Reporting Venereal Diseases.—The Social Service Council of Canada has adopted a resolution calling for the reporting of venereal diseases to the medical officers of health, and providing that no one be granted a marriage license until the contracting parties present medical certificates of normal mentality and freedom from venereal diseases.

The Licensure of Osteopaths and Chiropractors.—In the annual report of the Manitoba Medical Council the statement is made that each year the council has had to fight legislation to license osteopaths and chiropractors. Thus far the council has prevented legislation giving legal status to these people. The registration fee of the Manitoba council has been reduced from $125 to $100.

Hospital News.—Plans for a new general hospital at Kootenay, B. C., have been approved by the Hon. Dr. H. E. Young, provincial secretary. The estimated cost is $75,000, and provision is to be made for fifty-five patients.——A new hospital at Ashcroft, B. C., has just been opened. It cost $12,000 and has accommodation for fifty patients.——The plans for the new hospital at Victoria, B. C., call for an expenditure of $450,000 for the mortuary and pathologic buildings alone. The new hospital is to have in addition four ward buildings, an administration building and a service department building. All the buildings will have capacious roof gardens.——The government of British Columbia will assist the governors of the new hospital at Alberni, B. C., in clearing that institution of all debts.——The new wings of the Winnipeg General Hospital, which cost, exclusive of furnishings, $650,000, were formally opened on September 29. The accommodation in the Winnipeg General Hospital is now 478 beds.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 27, 1913.

Vital Statistics

A report has just been issued by the registrar general on the vital statistics for the year 1911, and contains several interesting facts. The birth-rate was 24.4 per thousand of the population and 2.8 below the average for the preceding decennium and the lowest on record. Provisional figures for 1912 indicate a further fall of 0.6. The death-rate was 14.6 per thousand, or 0.8 below the average of the preceding decennium; this is 1.1 per thousand above that recorded in 1910, which was the lowest on record. The provisional rate for 1912 is, however, only 13.3. Marriages were in the proportion of 15.2 per thousand, being 0.3 below the average of the preceding decennium but 0.2 above that in 1910, which in turn was 0.3 over the rate in 1909. The provisional figures available for 1912 show a further increase of 0.8. Infantile mortality, owing largely to the abnormal heat of the summer, was 130 per thousand births, or twenty-five more than in 1910 and the highest recorded since 1906. The provisional rate for 1912, however, is only ninety-five, so that in spite of interruptions there has been on the whole a fall in the mortality. As to individual diseases, measles and diarrheal diseases showed more than the average mortality. On the other hand, the death-rate from scarlet fever was the lowest recorded. That for whooping-cough was the lowest except the rate of 1910; that for diphtheria and croup the lowest except for 1910, and that for typhoid fever the lowest except for 1909 and 1910. The rates for bronchitis and all forms of tuberculosis were lower than in any previous years except 1910. On the other hand, the death-rate from cancer was higher among both males and females than in any preceding year.

Outbreak of Small-Pox in Australia

An extensive outbreak of small-pox has occurred in New South Wales and furnishes an object lesson, much needed in this country, of the pernicious effect of the antivaccinationists. For many years that community has been practically unvaccinated, and yet it is in constant communication with the almost perpetually infected ports of eastern Asia. A strict quarantine system has proved very effective, however, for many years. Indeed, with the exception of Victoria the vaccination laws are practically a dead letter in all the Australian colonies. In the period of thirty years, from 1881 to 1910, only 108 deaths from small-pox have been recorded in Australia, and many of these occurred in new arrivals in quarantine. So successful has the quarantine system been that from want of experience many of the local physicians missed the diagnosis of the milder cases of the present epidemic. It may be remarked that owing to the same cause many of the cases of small-pox which occurred in the last epidemic in London, about ten years ago, were not diagnosed by the physicians. It seems that the disease in the present epidemic was introduced from New Zealand, where it had been brought by a Mormon missionary suffering from such a mild form that he baffled the quarantine officers. He infected the Maori population among whom he was working. In Sydney

cases began to occur last April and were diagnosed as chicken-pox. In June a patient was admitted to the Sydney Hospital and the case was correctly diagnosed by a dermatologist. He was overruled by men of less experience, however, and only after great difficulty succeeded in getting the patient isolated. From that time greater care was taken, and in July it was at last officially announced that sixty cases of small-pox were recognized in Sydney. Every facility was at once provided for the vaccination of Sydney residents, of whom nine-tenths had never undergone the operation. Persons were vaccinated in large numbers. Unfortunately many of them were very ill after the operation with symptoms resembling influenza, and as they had been told that the operation was perfectly harmless disappointment resulted and vaccination fell into disfavor. This result appears to have been partly due to the inexperience of the operators, who used the lymph too freely. The total number of cases of small-pox recorded in New South Wales up to August 11, was 458. Nine of the patients had been vaccinated in infancy, but none of the others had been vaccinated. Such a scare has now been created that vaccination is made compulsory and quarantine is enforced more strictly than ever.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept. 26, 1913.

Vocational Mortality

Dr. Jacques Bertillon, formerly chief of the Paris department of statistics, has published a study of mortality in the different vocations, dividing them into five groups according to their particular causes of death: employments exposing the workman to (1) alcohol, (2) lead-poisoning, (3) organic waste, (4) the weather, and (5) confined positions. These five groups are subdivided into a hundred distinct vocations. The principal causes of mortality prove to be alcoholism, diseases of the lung, heart, liver and nervous system, diabetes, suicide and accidents.

Most healthful are those vocations carried on in the open air, provided they permit movement; those restricting freedom of movement, though carried on in the open air, are harmful. Trades exposing the workmen to alcohol and to lead-poisoning are the most dangerous.

Mortality is lowest among railway enginemen, wood-sawyers, teachers, attorneys and clergymen. It is nearly as low among physicians, pharmacists, architects, lawyers' clerks, mail and telegraph employees, commercial travelers, grocers, fruiterers, hatters, booksellers, hardwaremen, watchmakers, weavers, tanners, masons, road laborers and servants.

Mortality is higher than the general average among public officers, office clerks, street-railway employees, gas-workers, sellers of fish and poultry, jewelers, cloth merchants, saddlers, bakers, millers, butchers, curriers, rope-makers, cabinet-makers, carters, roustabouts and sailors.

Mortality is highest among day laborers, stevedores, miners, stone-cutters, tradespeople, coachmen, grooms, foot-boys, jockeys, petty shop-keepers, printers, blacksmiths, tilers, glass-makers, messengers, cutlers, chimney-sweeps, barbers and musicians.

Suicide is encountered in nearly all vocations but is rare among clergymen, officers, railway, mail and telegraph employees, shipbuilders, sawyers, employees in gas-works and booksellers. It is quite rare among tanners, masons, farmers, road-builders, boatmen, fishermen, wheelwrights and miners. It is met comparatively often among grocers, hardwaremen, cloth-merchants, coopers, weavers, blacksmiths, glass-makers, cabinet makers, tobacconists, notaries and lawyers' clerks, teachers, architects, sailors and gamekeepers. Suicide is frequent among brewers, tilers, petty shop-keepers, cutlers, hatters, barbers, tradespeople, clockmakers, jewelers, domestics, dairymen, sellers of fish and poultry, gardeners, commercial travelers, attorneys, physicians and pharmacists. All these vocations show a frequency of suicide above the average, but the highest suicide-rate is found among saloon-keepers, the servants of retail storekeepers, chimney-sweeps, butchers, fruiterers and musicians.

Treatment of Mushroom Poisoning by Abscess of Fixation

Long ago Fochier of Lyons proposed for certain generalized infections (pneumonia, puerperal fever, etc.), a treatment which bears his name to-day and consists in the production by the subcutaneous injection of essence of turpentine of an aseptic abscess of fixation. Carles of Bordeaux has shown that in the pus of these abscesses are sometimes found the organisms which have caused the disease against which this therapy has been directed. Lesieur also has shown that in certain cases of typhoid virulent bacilli of Eberth are found in the abscess of fixation. In addition to microbes, this pus has been found to contain toxic substances like lead or mercury in those patients affected with plumbism or mercurial poisoning.

Dr. A. Pic, professor of therapeutics at the Faculté de médecine de Lyon, has been led by these facts to believe that the toxic agent causing poisoning by mushrooms containing phallin (a toxalbumin acting like a microbe toxin) will be found fixed in the pus of the abscess. After observing for several years many cases of mushroom poisoning at Trévoux, Ain, he applied the method of Fochier to patients who were yet alive at the first examination, with the result that of twenty-three treated, nine died and the others recovered, a mortality of only 39 per cent., in contrast to 86.8, which is the usual mortality. Out of thirty-eight cases of phallin poisoning in France in recent years, thirty-three were fatal.

Pic and Martin conclude that the abscess of fixation is a therapeutic agent of the first order in those terrible intoxications due to the *Amanita phalloides*.

Sale of Alcohol to Railway Employees Forbidden

The management of the state railways has forbidden the sale of alcohol or alcoholic drinks to any one employed by the railways. Railway officers are asked to keep watch to prevent any employee leaving his work and going to a saloon during his working hours. A similar watch is recommended to prevent any one from bringing alcoholic drinks onto railway property.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 19, 1913.

Personal

Professor Gaffky, director of the Institute for Infectious Diseases, retires from his position October 1. His successor will probably be Professor Loeffler of Greifswald. Gaffky has been tired of his work for a long time, in view of his age, 63, and intends to give himself a complete rest and take a permanent vacation at his native city, Hanover. It will excite surprise among many that Loeffler at nearly the same age should change his residence, but Loeffler has for a long time expressed the natural wish to leave the small university town and seek a wider sphere of activity. This desire has undoubtedly grown stronger since the death of his wife a few years ago.

The seventieth birthday of the noted Berlin ophthalmologist, Prof. Julius Hirschberg, was observed September 18. Hirschberg's name is closely connected with the progress of modern ophthalmology. After he attracted the attention of Albrecht von Graefe in the Berlin municipal cholera hospital he stood in close relation to the father of ophthalmology, and helped with his own work to raise the treatment of the eye to the rank of an independent medical science. He was born in Potsdam, studied in Berlin, and was then for two years an assistant of Virchow. From 1866 to 1868 he was Graefe's assistant. Then he founded his own institute for ophthalmology, which has been in existence for over forty-three years, and in the records of which hundreds of thousands of patients are inscribed.

In 1870 Hirschberg began to teach in the Berlin university; after nine years he became professor extraordinary, and in 1900 he was made regular honorar-professor. His scientific work, however, was not devoted exclusively to medicine. Even when privat-docent he took up the study of higher mathematics and physics, and worked in the laboratory of Helmholtz. As a result, the scientist was capable of writing on the mathematical principles of medical statistics. Scientific journeys took him into almost all parts of the world, and his diaries on these journeys are very stimulating; especially the description of his journey around the world, and his books on Tunis, Egypt and "From New York to San Francisco." The ancient world attracted his especial interest. He has given a report of his journeys in Greece, and published a glossary and commentary on Aristophanes following the comedies of the Greek classic author almost line for line with well-chosen explanations and translations of all the expressions and idioms that are difficult to understand.

But Hirschberg's monumental work of recent years is the history of his special science, for which he also compiled a model dictionary. In 1899 he published the history of ophthalmology in ancient times following it by the history of this science among the Arabs. With two noted Arabian collaborators, he compiled the material with reference to Arabian

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ophthalmologists in a special work in two parts. Hirschberg followed this with the history of ophthalmology in the middle ages and into the beginning of modern times, describing its renaissance in the eighteenth century. This volume has been translated into French. The final volume, which appeared last year, treats of the ophthalmologists of Germany in the first half of the nineteenth century. What Hirschberg has accomplished in practical ophthalmology with his literary publications may even now be estimated. A selection of his works was published a few days ago.

I shall further call attention to his articles which appeared in 1869 on medullary cancer of the retina, on the electromagnet in ophthalmology for removal of splinters of iron from the interior of the eye, which has rendered innumerable operations unnecessary, his work on the treatment of myopia, and his articles on the statistics of blindness, on tumors of the eye, and the measurement of the field of vision. Hirschberg is the founder of and from 1877 to date has been the editor of the *Zentralblatt für Augenheilkunde*. Many ophthalmologic societies have elected him an honorary member and he is the president of the Berlin Ophthalmologic Society, corresponding member of the Paris Académie de médecine and an honorary doctor of the University of Athens. On his seventieth birthday, a portrait bust of Hirschberg was installed in his clinic.

As I have already mentioned, Privat-Docent Otto, the director of the Institute for Experimental Therapy established by the Kaiser Wilhelm-Gesellschaft, has been placed in charge of a department in the Institute for Infectious Diseases.

The chair of hygiene at the Bonn university left vacant by the call of Professor Kruse to Leipsic, will not be filled for the winter semester. Privat-Docent H. Selter will be in temporary charge of the hygiene institute.

For the first time, a woman physician has recently been appointed medical inspector for the Berlin public schools.

The Rudolf Virchow Building

At its session, September 18, the city council ratified the proposition of the city government, and provided: 1. For carrying on the Rudolf Virchow-Haus for five years succeeding Oct. 1, 1914, the Berlin Medical Society is granted a yearly stipend of $2,500 (10,000 marks) from the city treasury. 2. The city government is empowered, under conditions to be determined between the city government and the society, to grant the society for the building of the house a sum of $250,000 (1,000,000 marks) to be loaned for ten years at 4 per cent. interest. Thus the Berliner medizinische Gesellschaft is now relieved from all difficulty in this important matter, and the building can be begun at once.

Progress of Hygiene in the German Army

For some time courses in cooking have been held in the Prussian army, attended by officers, medical officers and noncommissioned officers. They are given in Berlin and are intended to instruct in the proper inspection of raw material and the preparing of foods. In the garrisons special windows have been constructed for giving out the food from the company kitchens by which the cleanliness in the rooms has been markedly increased. Quite generally also a set of measures has been adopted to carry out the modern principles of sanitation. For instance, a special waiting-room for the relatives of sick soldiers has been instituted in the large hospitals, and, in addition, the now quite extended provision for medical treatment of the members of families of the subordinate officers has had the result that special rooms for the dental polyclinic treatment of members of families and especially the wives of the non-commissioned officers have been established. Furthermore, the effort has been made to provide suitable opportunities for bathing in the garrisons and at the exercise fields for the troops where these are lacking.

The cooperation of all the factors favoring health has led to the result that the condition with reference to venereal diseases is much more favorable now as compared with other armies. According to the latest special statistics, 11,466 cases occurred annually, or 20.8 per thousand. In the French army the number was 24.4, in the Austria-Hungarian, 54.7, and in the British army 65.9 per thousand, that is, three times the number of infections compared with ours. As an example of the efforts now being made to reduce the morbidity among the soldiers, attention is being paid to the so-called "Exerzierfuss," and other foot troubles resulting from overuse in marching. The success of these efforts is indicated by the lowered percentage of such affections. Until 1901 there were annually about 28.4 per thousand afflicted with foot troubles, and now only 23.3 per thousand.

Marriages

CHARLES WILLIAM LOUIS HACKER, M.D., Albany, N. Y., to Miss Larry Diefendorf of Fort Plain, N. Y., at Watervliet, N. Y., September 17.

REUBEN H. LEAVITT, M.D., Carson, N. Dak., to Miss Marie Lynch-Bloss of Lebanon, Ohio, at Mandan, N. Dak., September 16.

ALBERT P. FITZSIMMONS, M.D., Tecumseh, Neb., to Miss Nellie Reed of Lincoln, Neb., at Schuyler, Neb., July 12.

ERNEST CARL WEIRICK, M.D., Enola, Pa., to Miss Alice C. Hair of Mechanicsburg, Pa., at Gettysburg, Pa., August 21.

CHARLES EDWARD TOWLE, M.D., Dorchester, Boston, to Miss Agnes Gertrude Kelly of Brighton, Mass., September 17.

JOSEPH I. WOISARD, M.D., Bristol, Conn., to Miss Evelyn Bellrose, of North Grosvenordale, Conn., September 16.

JOHN DALE GRAHAM, M.D., Elephant Butte, N. Mex., to Miss Treane Foster of Columbus, Mo., September 11.

GEORGE CARROLL THOMAS, M.D., U. S. Navy, to Miss Bertha Leeta Pratt of West Chester, Pa., September 15.

MILEY BARTON WESSON, M.D., El Paso, Tex., to Miss Emelyn Grace Guernsey of Delmar, N. Y., August 26.

WALTER LEONARD ALBIN, M.D., University Place, Neb., to Miss Anna Fay Hanson, at Crete, Neb., June 26.

HERBERT ROSS CLARK, M.D., Pierce City, Mo., to Miss Maud Mannering of Springfield, Mo., September 13.

CHARLES CRAWFORD ALLEN, M.D., Ada, Minn., to Miss Mary S. Moore of Arlington, Va., September 5.

ALBERT W. NASH, M.D., Dallas, Tex., to Miss Rose Nielson of Fort Worth, Texas, September 16.

SPURGEON SPARKS, M.D., Cumberland, Md., to Miss Lula V. Gibson in Lexington, Va., in August.

EDWARD LYMAN CORNELL, M.D., to Miss Mabelle Jane Cass, both of Chicago, September 16.

JOHN W. HURT, M.D., to Miss Mary Lovelace, both of Atlanta, Ga., September 22.

CARLOS MONTEZUMA, M.D., to Miss Maria Keller, both of Chicago, September 20.

Deaths

Edwin Bayard Harvey, M.D. For many years secretary of the Massachusetts State Board of Registration in Medicine; died at his home in Westboro, September 28, from heart disease, aged 79. He was born in Deerfield, N. H., and after graduating from Wesleyan University, was made professor of natural science in his alma mater. He graduated from Harvard Medical School in 1866, and settled in Westboro, where he became prominent from the start. He was a member of the school board for eighteen years, superintendent of schools for three years, chairman of the board of trustees of the public library, a trustee of the Westboro Savings Bank and of the State Reform School. He was a member of the House of Representatives in 1884-1885 and of the State Senate in 1894-1895. He was a fellow of the American Medical Association and American Academy of Medicine, president of the Massachusetts Medical Society in 1898-1900 and a councilor for more than thirty years. He drew up the bill establishing the State Board of Registration in Medicine, was the principal factor in securing its enactment, and for eighteen years gave his entire time to the work of secretary of the board. He also drafted and carried through the legislature the bill supplying free text-books to the pupils of the public schools of the state. Dr. Harvey was a born politician of the best sort. He was honest, earnest, fearless, practical and loyal to the best interests of the community as well as those of the medical profession. He was a brainy, forceful man who did things, and did them well, and gave far more thought to his work for the profession than to his own material prosperity.

Leonard Ballou Almy, M.D. Bellevue Hospital Medical College, 1876, died at his home in Norwich, Conn., September 28, after a prolonged illness, aged 62. He was born in Norwich, Conn., received his preliminary education in Yale University, and after his graduation in medicine settled in his home at Norwich. He was president, member of the executive board, surgeon and gynecologist to the William W. Backus Hospital,

Norwich. He was a member for many years of the American Medical Association, the Association of the Military Surgeons of the United States and of the Connecticut Medical Society. He served throughout the Spanish-American War as Major and Chief Surgeon U. S. V. and Chief Surgeon of the Second Division, Second Army Corps. Dr. Almy was one of the best-known surgeons of New England and was greatly beloved by his associates.

Nathan Jacobson, M.D. One of the most prominent surgeons of Western New York; died in the Syracuse Hospital for Women and Children, September 16, from angina pectoris, aged 56. He was born in Syracuse and was graduated from the College of Medicine of Syracuse University in 1877. After a year abroad, he returned to his home city and began the active practice of his profession, giving especial attention to surgery. In 1885 he was appointed instructor in surgery in his alma mater and three years later was made lecturer on clinical surgery and laryngology, resigning this position to become professor of clinical surgery. He was a fellow of the American Medical Association and was at one time president of the Onondaga County Medical Society. He was also for many years chief surgeon to St. Joseph's Hospital. He was known beyond the limits of the state as a surgeon of rare skill and good judgment, a man of medical learning, of high character and devoted to the ideals of his profession.

Reginald Heber Fitz, M.D. Harvard Medical School, 1868; a fellow of the American Medical Association and American Academy of Medicine; a member of the American Association of Physicians; Shattuck professor of pathologic anatomy until 1902, Hersey professor of the theory and practice of physic until 1908, and thereafter emeritus professor in his alma mater; co-author with Dr. H. C. Wood of a standard text-book on practice of medicine; physician to the Massachusetts General Hospital, Boston; died at his home in that city, September 30, aged 70.

William Herbert Denslow Lewis, M.D. University of Michigan, 1878; born in New York, April 2, 1856, was educated in America and abroad and was licensed in Illinois in 1878; for many years a member of the American Medical Association and in 1906 chairman of the Section on Hygiene and Sanitary Science. He served as president of the attending staff at the Cook County Hospital, and was a member of many societies and state boards for the study of various phases of sanitary science; died in Chicago, October 5, 1913, aged 57 years.

John Randal Stivers, M.D. Long Island College Hospital, Brooklyn, N. Y., 1894; a fellow of the American Medical Association; visiting physician to King's County Hospital; instructor in physical diagnosis in his alma mater from 1902 to 1904; for several years treasurer of the King's County Medical Society; president of, and attending surgeon to, the Samaritan Hospital; died at his home in Brooklyn, September 18, shortly after a second operation for sarcoma of the brain, aged 43.

Hiram M. Martin, M.D. University of Michigan, Ann Arbor, 1879; a member of the Illinois State Medical Society; president and professor of diseases of the eye and ear in the Chicago Ophthalmic College; president and professor of diseases of the eye and ear and clinical ophthalmology and otology in Jenner Medical College, Chicago; died in the Passavant Hospital, Chicago, September 29, aged 54.

Charles Lester Leonard, M.D. University of Pennsylvania, Philadelphia, 1889; a fellow of the American Medical Association, and American Roentgen Ray Society; one of the earliest Roentgen-ray workers of Philadelphia; died in Atlantic City, September 22, from malignant disease, due to prolonged exposure to the Roentgen rays, after a long illness and repeated surgical operations, aged 52.

William M. Paine, M.D. Vanderbilt University, Nashville, Tenn., 1880; for several years a member of the State Board of Health, but more recently a banker of Aberdeen, Miss.; president of the Mississippi State Medical Association, 1897-1898; died at his home in Aberdeen, September 3, nine weeks after a surgical operation.

LeRoy Marvin, M.D. Hahnemann Medical College, Chicago, 1870; for two years president of the staff of Hackley Hospital, Muskegon, Mich.; president of the Michigan State Homeopathic Society in 1909; died at his home in Muskegon, September 22, aged 64.

Phares N. Becker, M.D. Jefferson Medical College, 1888; a member of the Medical Society of the State of Pennsylvania; died at his home in Mastersonville, September 13, from tuberculosis, aged 50.

William Johnston Beattie, M.D. Bellevue Hospital Medical College, 1889; a member of the New Hampshire State Medical Society, and a practitioner of New York and Littleton, who was deeply interested in the serum treatment of tuberculosis; president of the Littleton (N. H.) Hospital; was struck by an automobile at Bretton Wood, N. H., September 26, and instantly killed, aged 48.

Emmett Claude Chapman, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; a fellow of the American Medical Association; first mayor of West Burlington, Iowa; later in charge of the Santa Fe Hospital, Raton, N. Mex.; since 1894, superintending physician and surgeon of the Santa Fe Hospital, Fort Madison, Iowa; died in that institution, September 22, aged 65.

Charles E. Campbell, M.D. New York Homeopathic Medical College, New York City, 1864; a Veteran of the Civil War in which he served as a surgeon of volunteers; a resident of New York City; president of the Dexter Sulphite Pulp and Paper Company, died at his summer home in Block Island, September 12, after an operation for peritonitis September 12, aged 72.

William Farmer, M.D. Hospital College of Medicine, Louisville, 1895, of Fairmount, Ky.; aged 54; was instantly killed as a result of an automobile accident near Fern Creek, while returning from Louisville August 23. In attempting to cross a wooden bridge, his motorcar skidded, crashed through the railing, and fell to the bed of the creek nineteen feet below.

Albert Thornton Birdsall, M.D. University of Minnesota, Minneapolis, 1896; a member of the Medical Society of the State of New York; clinical assistant in surgery in the New York Post-Graduate School and Hospital; consulting surgeon to the Brooklyn Tuberculosis Clinic; died at his home in Brooklyn, September 24, from pneumonia, aged 43.

Charles Anderson, M.D. Medical College of Ohio, Cincinnati, 1874; a fellow of the American Medical Association; formerly an officer of the Medical Corps of the Army, and a resident of Montecito, Cal., died in his mountain cottage, in the Santa Barbara National Forest, September 17, as the result of burns received in a forest fire, aged 63.

Charles Juergens, M.D. University of Goettingen, Germany, 1865; for several years professor of languages in Milwaukee and later a practitioner of Chicago; once editor of the *Cincinnati Courier* and *Anzeiger*, for 40 years a practitioner of Springfield, Ohio; died at his home in that city, September 18, from gastric ulcer, aged 72.

Robert Emory Moore, M.D. Johns Hopkins University, Baltimore, 1906; a member of the Medical Society of the State of New York, and New York Society of Anesthetists; assistant surgeon to King's County and Bedford Street hospitals, Brooklyn; died at Saranac Lake, N. Y., September 13, from tuberculosis, aged 33.

Benjamin W. Hollenbeck, (License, Indiana, 1897); a practitioner for forty-two years; a member of the Indiana State Medical Association and once president of the Laporte County Medical Society; local surgeon for the Wabash Railway at Westville; died at his home, about September 18, aged 63.

Frederick Conrad Smith, M.D. Baltimore University, 1898; of Philadelphia; died in his office in the northeastern part of the city, September 20, from the effects of poison, self-administered, and gunshot wounds, self-inflicted, it is believed, with suicidal intent, while temporarily insane, aged 36.

John Green Curtis, M.D. College of Physicians and Surgeons, New York City, 1870; a member of the Medical Society of the State of New York; professor and later professor emeritus of physiology in his alma mater; died at his summer home in Chatham, Mass., September 20, aged 68.

James Seymore North, M.D. Detroit Medical College, 1878; for many years justice of the peace and school trustee of "The Old North Neighborhood" near Lansing, Mich.; died at his home in Lansing, May 4, from nephritic abscess, aged 66.

August Henry Willis, M.D. Tulane University, New Orleans, 1908; of Algiers, La.; while returning from a professional call, September 17, was shot at from ambush and killed at French Settlement, Livingston Parish, aged 30.

William Green McWilliams, M.D. Atlanta (Ga.) Medical College, 1882; died at his home in LaFayette, Ga., July 16, from cerebral hemorrhage, aged 59.

Zachary J. Lantorn, M.D. University of Arkansas, Little Rock, 1885; died at his home in Dalark, September 3, aged 74.

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The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MEDICAL JOURNAL ADVERTISING

And Methods of Obtaining Paid-Up Subscribers

Time was when the postal authorities were lenient with publishers. The names of individuals who had ever subscribed for publications of a certain class were carried on the books indefinitely, whether they paid their subscriptions or not. This permitted a padding of the circulation figures. Of late years, however, the postoffice department requires publishers to have bona-fide paid-up subscriptions if they wish their publications to be carried at the low second-class rate. Certain medical journals have been hard put to it to get a circulation that would be at all attractive to the advertisers, on whose money they depend for continued existence.

Many and various have been the schemes devised whereby the dwindled circulation might be "boosted." Subscriptions could not be given away because the postal laws forbade it. One ingenious method of obviating this difficulty is worked in this fashion: Dr. John Doe writes an article that appears in a reputable medical journal. A few days after its appearance, Dr. Doe receives a letter from the editor and publisher of a medical journal that is in need of a subscription list. He is told that the editor has read his article with much interest and would appreciate receiving from Dr. Doe a brief abstract of it. He does not expect the doctor to go to the trouble of making this abstract for nothing. He will, therefore, on receipt of the abstract credit Dr. Doe with three years' subscription for himself or for one year for himself and one year for each of any other two doctors he may name. For every doctor that bites on this scheme the publisher increases his circulation by three copies and the federal officials are assured that they are paid-up subscriptions—not paid for in cash, it is true, but in "abstracts."

All of this preliminary to a letter recently received:

> *To the Editor:*—Enclosed find letter which speaks for itself. Now what I should like to know from you is the following: Is the *Charlotte Medical Journal* all it should be? Should a doctor contribute to a journal—thereby adding to its prestige and circulation—that carries questionable matter in the advertising pages? If the above journal is off color, does that act as a bar for good men to contribute?
>
> Very truly yours,
>
> L. J. GENELLA, M.D., New Orleans, La.

The letter which our correspondent encloses is on the stationery of the *Charlotte Medical Journal* and signed by the editor of that journal. Here it is:

> "My Dear Doctor Genella:—I have just looked over an article of yours published in the *New Orleans Medical and Surgical Journal* entitled 'Clinical Studies in Pituitary Irritation, with Report of Case.' I would be very glad indeed to have you send me a manuscript or article for the *Charlotte Medical Journal*. Your style of writing is very attractive.
>
> "If you will send me an article for the journal, I will be glad to publish same and will place your name on my complimentary mailing list. Under separate cover I am sending you a copy of the journal.
>
> "Of course I will expect the article to be typewritten."

Whether or not this is a modification of the "abstract" scheme or an attempt to boost the circulation of the *Charlotte Medical Journal* are questions we shall not attempt to answer. As to the questions propounded by our correspondent, they have been answered many times in these pages. We turn to one of the recent copies of the *Charlotte Medical Journal* and examine its advertising pages. On one of the first we find Anasarcin, a product whose fraudulent character was described at some length in THE JOURNAL, May 4 and 11, 1907. On another page we find Tongaline, which has also come in for a fair share of attention (see THE JOURNAL, Sept. 23, 1906, and May 10, 1913). A little farther over we find a half-page advertisement of Bannerman's Intravenous Solution, a nostrum first exploited as a "consumption cure" and now as a cure-all (see THE JOURNAL, May 31, 1913). Cactina Pillets (see THE JOURNAL, March 12, 1910), Hagee's Cordial of the Extract of Cod-Liver Oil (see THE JOURNAL, Oct. 13, 1906) Burnham's Soluble Iodin (see THE JOURNAL, March 28, 1908), Ethol (see THE JOURNAL, March 13, 1909), Bromidia (see THE JOURNAL, April 21, 1906), Papine (see THE JOURNAL, April 29, 1911), Phenalgine—two advertisements—(see THE JOURNAL, Jan. 13 and 27, 1906, and Jan. 27, 1912) and Sal Hepatica (see THE JOURNAL, March 26, 1910) are some more products which have attained unenviable notoriety but found a safe haven in the advertising pages of the *Charlotte Medical Journal*. Neither must we fail to refer to the advertisement of Duffy's Malt Whiskey (see THE JOURNAL, Nov. 23, 1912), which looks thoroughly at home.

Does our correspondent—in fact, does any conscientious physician having the interest of scientific medicine at heart—want to do anything that will tend to perpetuate therapeutic fraud? Subscribing for or contributing to medical journals whose income is largely derived from nostrums that are as vicious as many of the "patent medicines" advertised in the daily press hampers the medical profession in its fight for honesty in therapeutics and renders largely abortive its fight against fraudulent "patent medicines." So long as the accredited organs of the medical profession tolerate fraudulent "ethical proprietaries" in their advertising pages, just so long will the protests of physicians against the swindling advertisements of "patent medicines" in the daily press fall largely on deaf ears—and justly so.

AN EDITOR'S VIEW OF THE TRAVELING "DOCTOR"

The childlike credulity of the average person with regard to the superlative qualities of the itinerant quack who loudly proclaims his abilities in flamboyant advertisements, appears strange to the editor of the Canon City (Colo.) *Daily Record*. In the issue of Sept. 6, 1913, concerning traveling doctors in general, he says (no doubt having in mind some specific instances of grievous disappointment, or worse, in some of his too trustful neighbors and friends):

> "It's a strange thing to us why Canon City men or women would trust their eyes or their health in the hands of some unknown traveling doctor of any kind. It's a strange thing to us why any Canon City man would buy a suit of clothes or a bunch of teas or groceries from a strange agent whose word and business methods are wholly unknown to the buyer, and whose goods must be taken on faith in a stranger. But it is infinitely more incomprehensible why a man would trust his eyes, or the eyes of his wife or child, to the care of an unknown man whose ability, skill and professional reputation is wholly unknown. The eye is about the most sensitive and delicate organ about the body, and the one a person can least afford to take any chance with. You might afford to take a chance with a stranger on fixing up your corns or ingrown toe nails, but when it comes to the eye or some delicate question of health you should be pretty well satisfied that the man you go to is all right. And if the man lives in Canon City and you can go back to see him any time, he is pretty apt to give your case a good deal more thoughtful care than the man who is here to-day, gets your money, and is off to-morrow, perhaps never to return again. Think it over."

"THE LESSON OF THE FRIEDMANN 'CURE'"

We have commented frequently during the last year or two on the fact that the newspapers are taking more and more interest in public health matters, and we have had occasion to copy into our Economics or Propaganda departments matter that appeared in newspapers verifying this. An editorial appeared in the Boston *Herald*, Sept. 23, 1913, under the title given above. It is too good not to quote:

> "The report in the current number of THE JOURNAL of the American Medical Association utterly discrediting the Friedmann 'cure,' on the basis of the unanimous results of investigators, may seem to partake of lily-gilding to those who long ago were convinced of the man's charlatanry, and of the utter worthlessness of his serum.

"These results cannot be repeated too often. The success of the Friedmann advertising is, unfortunately, still bearing fruit. Like the fisherman's genii in the Arabian Nights, it has grown to such proportion that it can no longer be bottled up. And there are men bearing the medical degree low enough to take advantage of the well-known hopefulness of the consumptive to engage in this wretched business.

"If the great mass of the people, whose credulity makes possible the success of the 'sure cure,' be it for tuberculosis, or cancer without the use of the knife,' or for any one of the thousand-and-one ailments that the human flesh is heir to, will but read aright the lesson of the Friedmann fake, it will indeed have proved a 'cure.' It is this:

"No right-thinking physician ever associates with a private remedy. No honorable member of the profession can have any scientific secret from his colleagues.

"No reputable physician ever guarantees—anything. There is no such thing as a sure cure. Every scientific man knows that the human equation cannot be bound by hard-and-fast rules.

"The man with the secret or a guarantee is apt to be a faker. His aim is usually to relieve the pocketbook of the victim.

"Should the misery left in the Friedmann wake, the deluded hopes, the squandered savings, and even the hastened deaths, result in the awakening of the public intelligence in regard to the whole tribe of self-advertising harpies—if from it will come a greater trustfulness in the verdicts of the medical profession—the lesson may not have been in vain."

ANUSOL SUPPOSITORIES

"In Hemorrhoids and all Inflammatory Rectal Diseases, let your first thought Continue to be Anusol Hemorrhoidal Suppositories; they have Earned your lasting Confidence." Thus speaks an attractive folder recently sent to physicians. With a prodigal use of superlatives, the medical profession is told that these suppositories have for years "maintained their World-Wide Reputation" as the "Most Effective, the Safest . . . the Most Economical and . . . the Most Credit-Bringing of all Topical Rectal Remedies." The short memory of the public is notorious; from the point of view of the proprietary exploiter, the short memory of the medical profession must be equally well known. How, otherwise, would a firm try to make physicians believe that a product had "earned" their "lasting confidence" when the result of an examination by the Association's chemists, published in THE JOURNAL,[1] had shown that Anusol Hemorrhoidal Suppositories contained practically no "anusol." Moreover, as the Association's findings were a practical verification of the findings of a foreign chemist who also had failed to find any "anusol" in Anusol Suppositories, it is not quite clear what is meant by the term "world-wide reputation." Incidentally, the observant physician will notice that the list of the ingredients given on the Anusol Suppositories labels of 1913 differ from those of the vintage of four years ago. The label of the old boxes gave the ingredients thus:

Bismuth, Iodo-resorcinsulfon (Anusol), Zinc oxydat. pur., Balsam Peruv., Ol. cacao, Unguent cereum.

On the latest label, however, we find these ingredients given:

"Bismuth oxyiodid and resorcinsulphonate with Zinc oxid and Balsam Peru, incorporated in suitable base."

What will the formula be four years hence?

THE SANATOGEN "GRAND PRIX"

A number of letters have been received recently expressing surprise that Sanatogen had been granted a "grand prix" at the Exhibition of Medical and Surgical Material held in London at the same time that the Seventeenth International Congress of Medicine was in session. The correspondents have asked what such an "honor" meant. The company which exploits Sanatogen in the United States has not been slow to apprise the American public of the award. It has gone further and has written the advertising managers of magazines—including those that had refused Sanatogen advertisements—directing their attention to the fact that Sanatogen was awarded a "grand prize" and opining that "this unusual distinction" should make plain "the desirability of the presence of Sanatogen in the advertising columns of your esteemed publication."

Those familiar with the methods of awarding prizes, medals and certificates to commercial firms and their products at expositions and exhibitions attach little weight to the "honors" thus conferred. It is a fact that most purchasers of large—and expensive—exhibit space at such exhibitions receive some kind of award which, it is tacitly understood, will be a useful advertising asset. Every one can call to mind many food products of mediocre quality that have flaunted on their labels the gold medals received at various expositions.

Nevertheless, it seemed worth while to find out just what the connection was between the commercial exhibition at which Sanatogen received the grand prize and the Seventeenth International Congress of Medicine. The following facts were developed: The commercial exhibition was entirely distinct and separate from the scientific exhibit of the Congress. It was managed and conducted by a British drug journal which had been giving annual "exhibitions" of its own for some years past, and this took the place of its regular exhibition. Immediately after the awards were made public the advertising pages of this drug journal were filled with full-page advertisements of the various products that received prizes. It may interest our readers to know that while the cottage-cheese-glycerophosphate product Sanatogen received a "grand prize" two other proprietary cottage-cheese-glycerophosphate products received "gold medals" at the same time. In the pharmaceutical department of the exhibit a widely—and fraudulently—advertised "patent medicine" received a silver medal! From the facts given it should not be difficult to appraise at its right value the "honor" conferred on Sanatogen. The fact that the exploiters of this preparation are trying to make capital out of this "award" is significant.

Among the members of the Award Jury whose names were given by this drug journal were three men of prominence in Great Britain, to whom we have written. A reply has been received from one, Dr. Stephen Paget, who says: "I was not on the jury, nor do I know anything about the matter. . . . I had nothing whatever to do with the awarding of prizes."

Correspondence

How to Secure Reliable Drugs

To the Editor:—The recent article by M. I. Wilbert on "Carelessness in Pharmacy as a Reason for a Restricted Materia Medica" (THE JOURNAL, July 19, 1913, p. 189), very truly sets forth the complications and drawbacks incidental to the evolution of the modern drug-store. As a general emporium for all sorts of small wares and ready-made medicines, for confectionery, cigars and fancy articles, it may be a social necessity as stated, and undoubtedly is so. With the further elaborations of the soda-fountain, the tables for ice-cream customers and the great amount of profit secured along these lines, it is no wonder that the careful compounding of pure drugs should be the smallest element in the business and consequently become neglected.

Mr. Wilbert in his article suggests reform of the drug-store, but specifies shops devoid of "side lines" and equipped with the necessary analytical apparatus. A few such shops still exist in the large cities, but they are so distinctly in the minority that they can exercise but little influence to benefit the general public. The attractive profits of the "side lines" are so great that they carry almost all druggists with them, and, so far as I can judge, the careful handling of drugs is more and more neglected.

A further difficulty arises from the fact that a drug-store supplying the patients of a number of physicians has to include in its stock the favorite drugs and combinations pre-

1. Oct. 2, 1909.

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scribed by each of them—some of these rarely called for. With our large pharmacopeia and the great variety of products of the manufacturing chemists, to say nothing of the legion of nostrums, the druggist may well feel bewildered.

The suggestion of Mr. Wilbert that physicians should "take an active interest in evolving a restricted or preferred materia medica list" is certainly desirable; but when one druggist serves a half dozen or more physicians, it may be rather difficult to get them all to keep step in this movement.

Altogether, it must be confessed, the preoccupation of the druggist with his so-called "side lines" and the demoralization of the trade and the public with nostrums make the reform of his business exceedingly difficult. Doubtless it can be accomplished in certain instances under the personal influence and direct supervision of the physician, but in other cases it is practically impossible.

This condition of things is particularly unfortunate for the physician. He is responsible for the life and welfare of the patient and many times pins his faith on the activity of a single medicine. Should this remedy be unreliable or wrongly compounded, or should successive fillings of the prescription vary in activity, both the physician and the patient may suffer.

The matter of reliable drugs is so extremely important that any physician who is unable to obtain satisfactory service from druggists in his neighborhood is justified in supplying his own drugs.

More than twenty years ago I was in the position which I have just indicated, and in justice to my patients adopted the method of providing and dispensing my own medicines. Although I began this with many misgivings, it has worked exceedingly well. Carefully choosing the sources of my drugs and repeatedly testing their clinical efficacy, I can expect definite results from them. The patient gets the first dose promptly, usually before my visit is ended. Thus many uncertainties are avoided. The practice of dispensing does away with the unauthorized refilling of prescriptions and with the annoying habit which many patients have of lending them to their friends. The time required to keep my stock in order is not so great as I supposed it would be. It proves to be well spent, for it is closely interwoven with the art of medicine, in that it familiarizes me with the appearance, taste and other physical properties of my remedies. The expense in my hands has never exceeded 3 per cent. of my total receipts from practice. The method produces the greatest economy of material and of expense. It is interesting to find, after twenty years' use, that dispensing medicines has not led me to resort to the use of the ready-made nostrums or "shotgun" formulas. Examination of my hand-bag to-day shows that out of sixty-three medicines which I habitually carry, forty-seven contain only a single ingredient. The use of alkaloids and of the tablet form of medication greatly facilitates the carrying of medicines, and many tablets can be dissolved and given in liquid form if desired.

I do not wish to be understood as advocating that all physicians should dispense their medicines. Such a course would be unjust to some druggists. The well-equipped and conscientious druggist who has a high standard of work and lives up to it should be encouraged. On the other hand, I firmly maintain that no physician should jeopardize his patients or his own reputation by relying on a prescription service which he knows to be poor. He should, if necessary, provide and dispense his own medicines.

OLIVER H. HOWE, M.D., Cohasset, Mass.

Failure of Bacterial Sprays to Destroy Klebs-Loeffler Bacillus

To the Editor:—From time to time numerous investigators have advocated the use of bacterial sprays, usually fluid cultures of the *Staphylococcus aureus* or the lactic acid bacillus, for "freeing" the throat secretions of diphtheria carriers from the Klebs-Loeffler bacillus. This procedure defeats the practical value in employing culture methods for the release of quarantine. Frequently when cultures are submitted for diagnosis, the normal throat organisms will outgrow the Klebs-Loeffler bacilli and give negative results. Although these instances are the exception, the result can be more readily obtained by the introduction of pure bacterial sprays of other organisms. During convalescence, when the diphtheria bacillus is present in comparatively small numbers and usually confined to the deeper follicles of the tonsillar structure, cultures made in the usual manner will fail to reveal any other organism than that in the bacterial spray.

The laboratory of the Buffalo Department of Health has made a very careful investigation and finds that the introduction of bacterial sprays does not destroy the Klebs-Loeffler bacilli in throat secretions. On account of the predominance of the organism introduced in the spray often the cultures do not reveal the growth of the Klebs-Loeffler bacilli, but this bacillus still remains present in the source from which the culture was made and by a cessation of spraying will permit it to reappear in cultures.

For these reasons the use of bacterial sprays for obtaining "diphtheria-free cultures" furnishes false security, and defeats the efficacy of the culture method for determining the time for the release of quarantine. Diphtheria-free cultures can be obtained by the introduction of the bacterial spray, but the diphtheria organisms may still exist and are in no way influenced by the presence of the bacteria in the spray. Persons released from quarantine by such cultural evidences may still remain "carrier sources" in the transmission of diphtheria.

WILLIAM G. BISSELL, M.D., Buffalo, N. Y.
Chief, Bureau of Bacteriology, Department of Health.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VACCINE TREATMENT OF PNEUMOCOCCIC AFFECTIONS

To the Editor:—Please give the consensus of opinion as to the efficacy of the treatment of lobar pneumonia by means of Pneumococcic Bacterin.

W. B. LINTON, M.D., Rochester, Minn.

ANSWER.—There can hardly be said to be a consensus of opinion on this subject. The vaccine treatment of pneumococcic affections is still on trial. So far there is little evidence of its efficiency. The special article on "Bacterial Vaccine Therapy: Its Indications and Limitations," THE JOURNAL, June 28, 1913, p. 2046, says, "There is little evidence that stock or autogenous vaccines are of value in pneumococcic infections." Recent books on practice, as a rule, say nothing about this treatment. R. W. Allen ("Bacterial Disease of Respiration," pp. 115 et seq.) gives statistics from various sources, most of which are favorable, but the numbers of cases are so small that no reliable conclusion can be drawn from them. Schorer ("Vaccine and Serum Therapy," p. 158) says, "Active immunization will probably never be of great value in the majority of cases of lobar pneumonia due to pneumococci, because the crisis comes on about the time the results can be expected from the vaccination."

MEDICAL INSPECTION OF SCHOOLCHILDREN

To the Editor:—Can you refer me to literature relating to the subject of medical inspection of schoolchildren?

C. A. W. ZIMMERMANN, M.D., East St. Louis, Ill.

ANSWER.—The following is a list of references on the subject:

Steven, E. M.: Medical Supervision in Schools. Being an Account of the Systems at Work in Great Britain, Canada, the United States, Germany and Switzerland. Chicago Medical Book Co., 1910. Price $2.

Gulick, L. H., M.D., and Ayres, L.P., Ph.D.: Medical Inspection of Schools, Russell Sage Foundation Publication, Fourth Edition, 1913. Price $1.50.

Hogarth: Medical Inspection of Schools, New York, Oxford University Press. Price $2.

Cornell: Health and Medical Inspection of School Children, Davis. Price $3.

Medical Inspection of Schools. A Summary of Existing Legislation. Issued by Council on Health and Public Instruction of the American Medical Association, 1913.

School Inspection in Rural Communities, THE JOURNAL, Jan. 4, 1913, p. 70.

Jones, R. W.: Medical Inspection of Schools, *Wisconsin Med. Journ.*, November, 1912; abstr., THE JOURNAL, July 22, 1911, p. 314.

Hyde, G. E.: Medical Inspection of Schools, *Northwest Med.*, December, 1912; abstr., THE JOURNAL, Dec. 9, 1911, p. 1943.

Holmes, G. H.: Function of Medical Inspection in Checking Retardation, *Jour. Med. Soc. New Jersey*, January, 1913.

Kinney, R. H.: Plan for Medical Inspection of Country Schools, *Wisconsin Med. Jour.*, January, 1913.

Gantt, L. R. H.: Medical Inspection of Schools in South Carolina, *South. Med. Jour.*, April, 1913.

Parsons, J. G.: Health Supervision of Schools, *Journal-Lancet*, Aug. 1, 1912.

Dixon, S. G.: Medical Inspection of School Children, *Pennsylvania Med. Journ.*, September, 1912.

Holmes, G. J.: Educational Hygiene and Prophylaxis, *Jour. Med. Soc. New Jersey*, October, 1912.

Holmes, G. J.: Improved Medical Inspection of Public Schools and Its Results, *Jour. Med. Soc. New Jersey*, December, 1912.

Albert, H.: Diphtheria-Carriers and Their Relationship to Medical Inspection of Schools, *Am. Jour. Public Health*, Oct. 1, 1912.

Ayers, S. C.: Civic Medical Inspection of School Children with Special Reference to Diseases of Eye, Ear and Throat, *Lancet-Clinic*, Dec. 28, 1912.

Ayers, S. C.: Civic Medical Inspection of School Children with Special Reference to Diseases of Eye, Ear and Throat, *Jour. Ophth. and Oto-Laryngol.*, Jan. 19, 1912.

Albert, H.: Diphtheria-Carriers and Medical Inspection of Schools, *Iowa Med. Jour.*, Dec. 18, 1912.

Goodenough, E. W.: Some Problems Connected with Medical Inspection of Public Schools, *Yale Med. Jour.*, Nov. 19, 1912.

Montgomery, A. B.: Medical Inspection of Public Schools, *Boston Med. and Surg. Jour.*, December, 1912.

Story, J. B.: Medical Inspection of Schools and Schoolchildren, *Dublin Jour. Med. Sc.*, January, 1912.

ADMINISTERING SALVARSAN A SURGICAL PROCEDURE

To the Editor:—1. Is the administration of salvarsan considered a medical or surgical procedure? 2. If in the clinic the diagnosis of syphilis is made and salvarsan is advised, to which department should the patient be referred?

J. R. ROBINSON, Augusta, Ga.

ANSWER.—1. The administration of salvarsan would probably be classed as a minor surgical procedure.

2. If in the clinic the diagnosis of syphilis is made and salvarsan is advised, that department should undertake the administration of the drug which is best fitted to do so properly. If the case be one of cerebrospinal syphilis, it could hardly be properly referred to the department of dermatology or genito-urinary diseases, which might very properly take care of all primary and secondary manifestations. In instances in which a doubt arises, the case might best be referred to the surgical department, where the drug could be administered under the proper aseptic and technical precautions.

SCHULTZE'S INDOPHENOL-OXYDASE REACTION

To the Editor:—Please give the principles and technic of Schultze's indophenol-oxydase reaction as mentioned in the abstract of Dunn's paper, THE JOURNAL A. M. A., June 14, 1913, p. 1924.

J. B.

ANSWER.—The reaction is described and explained by Dunn as follows:

The films were fixed by immersion in 1 per cent. osmic acid for five seconds. They were then washed thoroughly in running water for five minutes and brought into a mixture of equal parts of dimethylparaphenylenediamin, 1/5 per cent. aqueous solution, and alpha-naphthol, saturated aqueous solution, for periods varying up to half an hour. The films were then washed for a few minutes in running water and mounted on slides in a mixture of equal parts of commercial water-glass and tap-water. Normal blood-films treated in this way show a deep blue staining of the polymorph leukocytes due to formation of indophenol in their protoplasm; this occurs by virtue of the oxydizing ferment or oxydase present in these cells. For details of the reaction see Schultze, *München. med. Wchnschr.*, 1909, lvi, 167, and Dunn, *Jour. Path. and Bacteriol.*, 1910, xv, 20.

A BOOK ON ENZYMES AND THEIR ACTION

To the Editor:—What works can you recommend as the best on the subject of enzymes and their relation to infectious diseases?

JOSEPH J. NACKER, M.D., Detroit.

ANSWER.—We know of no book which discusses definitely the relation of enzymes to infectious diseases. The following book gives a complete discussion of enzymes and their action:

Cohnheim, Otto: Enzymes: Six Lectures Delivered under the Huter Lectureship Foundation at the University and Bellevue Hospital Medical College, New York, John Wiley & Sons, 1912, price $1.50

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 11-12. Sec., Dr. W. S. Stuart, Pine Bluff; Homeopathic, Little Rock, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; Homeopathic, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DISTRICT OF COLUMBIA: Washington, October 14-16. Sec., Dr. George C. Ober, 125 B St., S. E.

FLORIDA: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

GEORGIA: State Capitol, Atlanta, October 14. Sec., Dr. C. T. Nolan, Marietta.

KANSAS: National Hotel, Topeka, October 14. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, October 27-29. Sec., Dr. A. B. Brown, 34 Cusachs Building; Homeopathic, 702 Macheca Bldg., New Orleans, November 3. Sec., Dr. Edward Harper, New Orleans.

MAINE: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

MICHIGAN: Capitol Bldg., Lansing, October 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Jackson, October 28-29. Sec., Dr. E. H. Galloway, Jackson.

NEBRASKA: Lincoln, November 12-13. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: State House, Trenton, October 21-22. Sec., Dr. H. G. Norton, 429 E. State Street.

NEW MEXICO: Santa Fe, October 13. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Muskogee, October 14. Sec., Dr. John W. Duke, Guthrie.

SOUTH CAROLINA: Columbia, November 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St.

TEXAS: Bender Hotel, Houston, November 11-13. Sec., Dr. W. L. Crosthwait, Suite 1003, Amicable Bldg., Waco.

WYOMING: State House, Cheyenne, October 15. Sec., Dr. J. B. Tyrrell, Laramie.

Georgia Reciprocity Report

Dr. C. T. Nolan, secretary of the Georgia Board of Medical Examiners, reports that seventeen candidates were licensed through reciprocity from January 1 to June 10, 1913. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of California, Los Angeles	(1903)	Virginia
George Washington University, D. C.	(1908)	N. Carolina
Atlanta College of Physicians and Surgeons	(1901)	N. Carolina
College of Physicians and Surgeons, Chicago	(1897)*	Missouri
American Medical Missionary College, Chicago	(1900)	Iowa
Fort Wayne College of Medicine	(1891)	Michigan
Louisville Medical College	(1874)	Mississippi
University of Louisville	(1910)	Tennessee
Baltimore Medical College	(1911)	Maryland
Maryland Medical College	(1910)	Maine
Ohio Medical College	(1891)	Indiana
Memphis Hospital Medical College	(1904) (1911)	Tennessee
Meharry Medical College	(1907)	Louisiana
University of Tennessee (1901) Kentucky; (1911) North Carolina.	(1911)	Tennessee;
Medical College of Virginia	(1901)	Virginia

* Official information from the college says this man is not a graduate.

Philippine Islands

Dr. C. E. Norris, secretary of the Philippine Islands Board of Medical Examiners, reports that since Jan. 1, 1913, 27 candidates have been licensed to practice medicine. The following colleges were represented:

College	Year of Graduation
Northwestern University	(1911)
Baltimore Medical College	(1909)
St. Louis University	(1908)
Jefferson Medical College	(1892) (1912)
Philippine Medical School	(1913)
St. Tomas University	(1913, 21)

Virginia June Report

Dr. Herbert Old, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 24-27, 1913. The number of subjects examined in was 18; total number of questions asked, 101; per-

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centage required to pass, 75. The total number of candidates examined was 96, including 3 osteopaths, of whom 72 passed, including 3 osteopaths, 21 failed, and 3 withdrew. Five candidates were licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Howard University, D. C.	(1912)	84
George Washington University, D. C.	(1913)	76
University of Louisville	(1911)	75
Johns Hopkins University	(1913)	84, 89
Maryland Medical College	(1911) 75; (1913)	76, 82
Baltimore Medical College	(1913)	79
University of Maryland	(1913)	82, 88
Long Island College Hospital, N. Y.	(1895)	75
North Carolina Medical College	(1913)	79, 82
Jefferson Medical College	(1913)	87
University of Tennessee	(1893)	81
University of Virginia	(1913) 81, 82, 83	
Medical College of Virginia (1910) 75; (1912) 77, 77; (1913) 75, 76, 76, 78, 79, 79, 80, 80, 80, 84, 85, 86, 88.		
University College of Medicine, Richmond (1903) 83; (1912) 75, 79, 91; (1913) 75, 75, 75, 75, 76, 77, 77, 78, 78, 78, 79, 80, 80, 80, 80, 81, 81, 81, 82, 82, 82, 82, 84, 85, 85, 85, 88, 89.		
Aberdeen University	(1901)	89
University of Naples, Italy	(1893)	75

FAILED	
College of Physicians and Surgeons, Chicago	(1912) 66
Maryland Medical College	(1909) 71
Leonard Medical School	(1911) 59; (1912) 67
Lincoln Memorial University	(1912) 54
Meharry Medical College	(1907) 59
University College of Medicine, Richmond	(1913) 65
Medical College of Virginia (1912) 67; (1913) 63, 67, 67, 68, 68.5, 69, 70, 70, 71, 72, 72, 72, 73.	

LICENSED THROUGH RECIPROCITY		
College	Grad. Year.	with Reciprocity
Howard University, D. C.	(1903)	N. Carolina
University of Louisville	(1909)	Kentucky
College of Physicians and Surgeons, Baltimore	(1886)	Tennessee
University of North Carolina	(1908)	N. Carolina
University of Virginia	(1906)	Dist. Colum.

Oregon July Report

Dr. L. H. Hamilton, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 1-3, 1913. The number of subjects examined in was 15; total number of questions asked, 108; percentage required to pass, 75. The total number of candidates examined was 87, including 18 osteopaths and 12 non-graduates, of whom 65 passed, including 16 osteopaths and 4 non-graduates and 22 failed, including 2 osteopaths and 8 non-graduates. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of Colorado	(1911)	82.5
George Washington University	(1913)	81.9
College of P. and S., Atlanta	(1913)	82.4
College of P. and S., Chicago	(1911)	91.3
Illinois Medical College	(1901)	81.6
Hahnemann Medical College, Chicago	(1904)	78.5
Chicago Homeopathic Medical College	(1895)	82.7
Rush Medical College	(1913)	83, 84.5
Northwestern University	(1912)	82.3, 85.5
College of P. and S., Keokuk	(1908)	78.8
University of Louisville	(1908) 76; (1913)	79.4
Kentucky University	(1907)	77
Kentucky School of Medicine	(1903)	78.9
Johns Hopkins University	(1906) 86.2; (1910)	85.3
Baltimore Medical College	(1911)	79.7
University of Michigan, College of Medicine and Surgery (1877) 79.2; (1909) 81.7; (1912) 87.4.		
Kansas City Medical College	(1904)	80.4
Washington University, St. Louis	(1910)	77.4
American Medical College, St. Louis	(1913)	83
Farnes Medical College	(1908)	79.8
Cleveland-Pulte Medical College	(1913)	78.9
University of Oregon ((1912) 78.4, 79.8; (1913) 80.6, 84.4, 84.5, 89.		
Willamette University (1905) 82.2; (1912) 77.4; (1913) 78.3, 79.4, 81.6.		
University of Buffalo	(1897)	82.1
Jefferson Medical College	(1911) 83.6; (1912)	83.7
Woman's Medical College, Pennsylvania	(1906)	86.5
Hahnemann Medical College, Pennsylvania	(1908)	83.2
Trinity Medical College, Ontario	(1891)	77.2
University of Kiel, Berlin	(1903)	77.5
Undergraduates	79.8, 81, 83.7,	88.1

FAILED	
College of P. and S., San Francisco	(1910) 72.1
University of California	(1876) 64.9
Dearborn Medical College, Chicago	(1906) 74.4
Kentucky School of Medicine	(1908) 75.6
St. Louis University	(1908) 70.3
Willamette University (1912 70.8, 73.5, 76.1, 76.3; (1913) 74.3, 74.9.	
Woman's Medical College, Pennsylvania	(1901) 72.6
Undergraduates	54.7, 56.2, 69.4, 70.4, 72.8, 73.1, 76.1, 77.3

Book Notices

MEDICAL INSPECTION OF SCHOOLS. By Luther Halsey Gulick, M.D., and Leonard P. Ayres, Ph.D. Fourth Edition. Russell Sage Foundation Publication. Cloth. Price, $1.50. Pp. 224, with illustrations. New York: Survey Associates, Inc., 1913.

MEDICAL SUPERVISION IN SCHOOLS. Being an Account of the Systems at Work in Great Britain, Canada, the United States, Germany and Switzerland. By Edward Millar Steven, M.B., Ch.M. Cloth. Price, $2. Pp. 268, with 40 illustrations. Chicago: Chicago Medical Book Company, 1910.

THE POSTURE OF SCHOOLCHILDREN. With its Home Hygiene and New Efficiency Method for School Training. By Jessie H. Bancroft, Assistant Director Physical Training, Public Schools, New York City. Cloth. Price, $1.50 net. Pp. 327, with 135 illustrations. New York: The Macmillan Company, 1913.

SCHOOL HYGIENE. By Fletcher B. Dresslar, Ph.D., Specialist in School Hygiene and School Sanitation, United States Bureau of Education. Cloth. Price, $1.25 net. Pp. 369, with 51 illustrations. The Macmillan Company, 1913.

HELPING SCHOOLCHILDREN. Suggestions for Efficient Cooperation with the Public Schools. By Elsa Denison of the New York Bureau of Municipal Research. Cloth. Price, $1.40 net. Pp. 349, with illustrations. New York: Harper & Brothers, 1912.

The growing interest in school hygiene and its problems is well shown by the marked increase in books on the subject which have appeared in the last few months, of which the five under consideration are typical. The volume by Gulick and Ayres is a revision of the book on "Medical Inspection of Schools," published by the Russell Sage Foundation in 1908. The demand was such that three editions of the first book have been issued. This is revised up to January, 1913. Those familiar with the first edition will not require any further recommendation. To others it may be said that the volume contains practically all the essential information needed for becoming familiar with this subject of growing importance. The illustrations and charts are particularly good. Chapters on history and present status of school inspection, detection of contagious diseases, physical examinations, school nurse, cost and salaries and legal provisions are among the most important.

The student of medical school inspection will be able to compare the methods developed in England with those in this country by reading Steven's book on "Medical Supervision in Schools." While Steven discusses the methods adopted in Canada, the United States, Germany and Switzerland, the bulk of his book is devoted to conditions in England.

The social side of school conservation work is presented in Miss Elsa Denison's book, "Helping Schoolchildren," which is devoted to suggestions for efficient cooperation with the public schools. Without taking up the technical side of school inspection or management, Miss Denison discusses private giving, short cuts to publicity, community problems, the special opportunities for women interested in the improvement of school efficiency, the relation of physicians to the schools, and the possibilities of cooperation on the part of churches, business men and citizens in general. While necessarily general and somewhat discursive in its methods, the book contains many suggestions of value and much interest.

The extent to which the consideration of school hygiene is being carried is shown by Miss Jessie H. Bancroft's book on "The Posture of Schoolchildren." The book is copiously illustrated, although some of the photographs, especially reproductions of celebrated paintings and statues, hardly seem worth the space and expense. To the school physician, the conscientious teacher or the parent the book will be of interest and value, even if positive conclusions on all points are not possible at present.

Fletcher B. Dresslar is the special agent of the United States Bureau of Education on School Hygiene and Sanitation. His book on "School Hygiene" is therefore worthy of special attention on account of the broad sources of information at his disposal. Dresslar has not written for the specialist, but for the teacher. He discusses playgrounds, location and construction of school buildings, lighting of schoolhouses, desks, baths, water-supply, ventilation, heating, physical defects of pupils, medical inspection, and what all will agree is perhaps one of the most important of subjects, although generally neglected by writers on school hygiene, the cleaning of schoolrooms, and the qualifications and duties of the school janitor. The book contains a large amount of care-

fully collected information on a comparatively new subject, and cannot be overlooked by any careful student of school hygiene. The general arrangement of the book is excellent, although the paper and binding are not what it deserves.

ORGANIC CHEMISTRY. Including Certain Portions of Physical Chemistry for Medical, Pharmaceutical and Biological Students (with Practical Exercises). By Howard D. Haskins, A.B., M.D., Associate Professor of Organic Chemistry and Bio-Chemistry, Medical Department, Western Reserve University. Second Edition. Cloth. Price, $2 net. Pp. 430. New York: John Wiley & Sons, 1913.

There is no denying the fact that there is a promising field for a brief and yet comprehensive work on organic chemistry for medical students. The majority of books on the subject have not kept pace with the advances made along lines of organic, biologic, physical and physiologic chemistry as demanded by the up-to-date medical man. These increased demands have multiplied the difficulties in the way of properly presenting the subject to large classes of medical students, and any effort which in the least tends to lessen these difficulties is welcome. This book is a step in the right direction. The demand for foundation principles of organic analysis is very well satisfied in the four chapters devoted to the subjects of purification and identification of organic compounds, molecular weight determinations, elementary analysis, etc. This demand is still further satisfied by the excellent laboratory exercises to be found throughout the book. While we might prefer to see the various groups of compounds arranged in the order of their increasing complexity as to number of elements, that is, CH compounds first, then CHO, then CHO with halogen, sulphur, etc., the present arrangement will perhaps prove more popular. Throughout, more than usual attention is given to medicinal substances, yet still more space might be devoted to this important feature. Structural formulates are used liberally and their value cannot be denied, yet there is a tendency to place too much stress on them and some, if given at all, should be more complete. For example, the "suggested" structure for hexamethylenamin (p. 192) might well be omitted, as also the structure of trional and tetronal (p. 195). The brief chapter on alkaloids could with advantage be much enlarged. The structural formulas for these alkaloids teach little to the medical student, and the space devoted to them could well be used for a more comprehensive discussion of the physical and chemical properties of alkaloidal substances. Since laboratory exercises are so frequently introduced, one or two on behavior, isolation and identification of alkaloids would not be amiss.

ANATOMISCHE GRUNDLAGEN WICHTIGER KRANKHEITEN. Fortbildungsvorträge aus dem Gebiet der pathologischen Anatomie und allgemeinen Pathologie für Ärzte und Medizinalpraktikanten. Von Dr. Leonhard Jores, Professor der pathologischen Anatomie an der Kölner Akademie für praktische Medizin. Paper. Price, 15 marks. Pp. 382 with 250 illustrations. Berlin: Julius Springer, 1913.

The author has collected thirty-four of his lectures to postgraduates on a large variety of subjects, each being discussed from the point of view of pathologic anatomy in its bearing on clinical medicine. Among the diseases discussed are anemia, leukemia, endocarditis, arteriosclerosis, aneurysm, cerebral hemorrhage, pulmonary embolism, septicemia and pyemia, pneumonia, diphtheria, scarlet fever, typhoid, appendicitis, tuberculosis, syphilis, paralysis, brain tumor, carcinoma, liver lesions, gastric and intestinal ulcer, Bright's disease and diabetes. Each topic is elucidated by many beautiful illustrations, both in color and in black and white. The style is a most enjoyable one — that of a well-informed and experienced lecturer and close observer. One or more post-mortem examinations forms the basis of each lecture, and the author endeavors to piece together the clinical history of each case by studying the pathologic findings and the method and cause of their production, and then details the clinical symptoms which existed or should have existed in the case. The opinions of others are quoted frequently, and arguments pro and con are quoted, thus giving the reader practically a complete word-picture of every subject discussed. One cannot do otherwise than commend this book, at the same time expressing the wish that there were many more like it.

Medicolegal

Liability for Malpractice in Leaving Tampon in Nose—Patient Not Bound to Return for Further Treatment—Liability of Proven Specialists

(*Williams vs. Wurdemann and another* (Wash.), *128 Pac. R. 639*)

The Supreme Court of Washington affirms a judgment for malpractice. The court says that the defendants were physicians and surgeons specializing in the treatment of diseases of the eye, ear, nose and throat. The plaintiff suffered from a ringing sensation and partial deafness in his left ear and employed them to treat him for his malady. He consulted with one of the defendants particularly, and the latter in the course of the treatment performed a surgical operation on his nose, removing a bony or cartilaginous growth or "spur" therefrom. The wound made by the operation bled so profusely that it was found necessary, in order to stop it, to remove the plaintiff to a hospital and pack that part of his nose surrounding the wound with absorbent cotton. The physician first undertook to pack the nose with cotton tampons pushed in with instruments, but, finding that he could not stop the hemorrhage in that way, ran a string through the nasal channel into the mouth, and by fastening cotton tampons to the string succeeded in drawing them into the nose tight enough to accomplish his purpose. After the lapse of several hours the string on which the tampons were fastened was removed. The plaintiff was then given a lotion for local application and told to return for further treatment. No time seems to have been fixed for his return, and he did not call until some six days later, when he found that the physician who had treated him had left for a visit to the Eastern states to be gone for an indefinite time, and the plaintiff was waited on by the other defendant, to whom he described his condition and who advised him to go home and remain quiet for a time. The plaintiff, however, did not improve as was expected. On the contrary, his nose soon began to discharge fetid matter, and some days later he consulted another physician, who, on examining the nose, found a cotton tampon on one side and an adhesion on the other. That physician treated the plaintiff by removing the tampon, dividing the adhesion and washing out the nose. Recovery speedily followed.

It was the plaintiff's claim that the tampon found in his nose by the last-mentioned physician was a part of the packing put in originally by the first-mentioned one to stop the bleeding following the surgical operation and was by an oversight on his part not removed at the time of the removal of the tampons attached to the string; that this was not discovered by the other defendant whom he consulted some days after the operation, and was the cause of the disorders following that operation. The plaintiff's evidence, the court thinks, tended reasonably to support this conclusion, and, this being so, the court thinks it was for the jury and not the court to say whether the defendants were guilty of such negligence as constituted malpractice.

It was further argued, however, in this connection, that the plaintiff was obligated to return to the defendants for further treatment when he discovered that he was not getting along as well as he should and that his failure so to do was such negligence on his part as would prohibit a recovery against the defendants, but such is not the rule. It is true, undoubtedly, that if a patient employs a physician to treat him for a malady, and receives careful and skilful treatment at his office, but fails to return to the office for further treatment before he is discharged by the physician, and in consequence suffers an injury, he is not entitled to recover against the physician for such injury, and it is also true that a physician's liability ceases the moment his patient dismisses or discharges him, if his treatment of the case has been proper up to that time. But these principles have no application when the physician's treatment of the case has been improper. When being improperly treated the patient is at liberty to quit at any time, and he may hold

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the physician liable for the injuries suffered by him because of the improper treatment, notwithstanding it is highly probable that the physician, had the patient continued his treatment, would sooner or later have discovered that his treatment was improper and would so have modified it as to effect a cure.

It was objected to certain instructions given by the court on its own motion that it was assumed therein that the defendants were treating the plaintiff as specialists, whereas this action was brought against them as general practitioners and there was no issue as to the character in which they were sued. While it was true that the plaintiff did not allege in his complaint that the defendants undertook as specialists to treat him for the particular malady with which he was suffering, yet he was permitted to testify without objection to facts tending to show that the defendants held themselves out as specialists in the treatment of the disease with which he was afflicted; and the defendants themselves testified, in answer to questions put to them by their own counsel, that they were practicing as specialists in the treatment of diseases of the eye, ear, nose and throat. Under the practice in this state it is not error for the court to instruct the jury according to the case made by the undisputed evidence, notwithstanding such evidence may go beyond the issues made by the pleadings. There was therefore no error in assuming that the defendants undertook to treat the plaintiffs as specialists.

Liability for Malpractice in Causing Dislocation of Arm by Treatment—Proper Subject for Expert Testimony

(Taylor vs. Kidd (Wash.), 129 Pac. R. 406)

The Supreme Court of Washington affirms a judgment for damages for malpractice on condition that it be reduced from $5,500 to $3,500. The court says that the plaintiff, on March 6, 1909, while working on the roof of a house, fell therefrom to the ground, a distance of about 25 feet, and was severely injured. He employed the defendant, a physician and surgeon, to attend him. The defendant found him suffering with two broken ribs, a severe strain on the left shoulder, and various contusions on his body. He immobilized the shoulder and ribs and accorded the contusions the usual treatment. By the latter part of June the broken ribs had adhered, the contusions had healed and some use had been acquired of the injured shoulder. The shoulder, however, was not thought to be making satisfactory progress. The arm had very little motion, attempts to manipulate it caused pain, and it had also become somewhat atrophied. The defendant diagnosed the trouble with the arm as an adhesion of the fibrous tissue surrounding the glenoid cavity of the scapula, which he endeavored to reduce by massage and manipulation, but without success. In the early part of July he advised the plaintiff that a more rigorous manipulation of his arm than could be had without the use of an anesthetic was necessary in order to break up the adhesions, and appointed a time for the patient to meet him at his office and receive such treatment. The plaintiff attended at the office at the time appointed, and received one such treatment, which gave him some pain and caused considerable swelling in the arm and shoulder. On July 17, when the pain and swelling from the first treatment had somewhat subsided, the plaintiff went to the office a second time and his arm was subjected to a further and more rigorous manipulation by the defendant and his assistant. This last operation left the arm in an inflamed condition and much swelling and pain resulted, causing the patient to take to his bed, where he was confined for about ten days. Between that date and August 15 the defendant visited him almost daily and such times as his arm would admit of it subjected it to movement and manipulation. On the last-named date the defendant discontinued the manipulation, prescribed treatment for reducing the swelling and inflammation, and told the patient to come to his office as soon as the swelling should be reduced, when he would examine his shoulder with a Roentgen ray. The plaintiff, however, did not call again at the defendant's office, but on September 6 consulted with a Dr. Bates, who subjected him to a Roentgen ray examination. The plate disclosed a dislocation of the shoulder joint, the head of the humerus projecting downward and inward. To correct the difficulty Dr. Bates advised a surgical operation on the shoulder, which he afterward performed with the assistance of another physician. On cutting into the shoulder he found the head of the humerus in a friable and porous condition, so much so that it was deemed necessary to cut away the end of the humerus for about 2½ inches. After removing this portion of the humerus, the end remaining was set back into the shoulder cavity and the wound inclosed and dressed. At the time of the trial the wound had entirely healed, the arm, while much shorter than it was originally, had recovered much of its lost motion and usefulness, having, as was stated, perhaps 75 per cent. of its original power and scope of motion. The plaintiff thereafter instituted this action for malpractice. In his complaint he alleged the fact of his injury, the employment of the defendant to treat the same, and the manner of the defendant's treatment thereof, alleging as negligence that the defendant dislocated his arm on July 17, 1909, while attempting to break up the adhesions arising from the disuse of the arm following the original injury. Issue was taken on the complaint and a trial had which resulted in a verdict against the defendant in the sum of $5,500. The court thinks that the size of the verdict would indicate that the jury felt inclined to visit the entire loss suffered by the plaintiff on the defendant, whereas he was responsible only for the injury and suffering caused by his own acts, not those caused by the original injury, with which he had nothing to do.

The defendant contended that there was error in the trial judge's refusal to sustain his several challenges to the sufficiency of the evidence, arguing that the evidence failed to show that he did not treat the injury of the plaintiff with that ordinary diligence and skill which physicians and surgeons, practicing in the same and similar communities, ordinarily exercise in like cases. But the court thinks there was on this question sufficient evidence to make a case for the jury. Aside from the general outline of the evidence heretofore given, there was the positive evidence of a physician who examined the arm shortly prior to July 17, 1909, that there was then no evidence of dislocation, and it will be remembered that this was also the defendant's original diagnosis. There was therefore evidence from which the jury could well have found that the defendant dislocated the plaintiff's arm in his endeavor to remedy its ankylosed condition following the original injury; and the fact of such dislocation, and the further fact that he did not discover the dislocation at the times he subsequently manipulated the arm, was clearly evidence that he did not exercise the diligence and skill required of the ordinary physician and surgeon. For such injury as the plaintiff suffered because of such lack of diligence and skill he was, of course, entitled to recover from the defendant.

The plaintiff was permitted, over the objection of the defendant, to propound to his expert witnesses certain questions containing a summary of the facts the evidence on his part tended to establish concerning the treatment accorded the plaintiff by the defendant, and an inquiry whether the treatment thus accorded was such treatment as an ordinarily skilful physician, practicing in the community in which the defendant practiced, would bring to the care of such an injury. This was assigned as error, because, it was argued, it allowed the witness to determine the very question the jury was impaneled to determine. But the court thinks the question not objectionable on that ground. The question whether the treatment accorded the plaintiff's injury by the defendant came up to the standard of ordinary care and skill was not a question within the knowledge of persons of ordinary learning and experience, and hence a jury selected from such persons could not know from the mere description of the treatment whether or not it was reasonably careful and skilful. It was therefore proper to call on persons, learned

in the particular science and familiar with the proper practice in like cases, to state whether in their opinion the treatment met the prescribed standard, and this, even though the question whether or not it did meet the required standard, was the ultimate question for the jury to determine. If it be competent for an expert medical witness to state what treatment a reasonably skilful physician would have adopted in a given case, or to give his opinion whether his examination of a person's condition was superficial or thorough, clearly he may give it as his opinion whether a given treatment was or was not ordinarily careful and skilful.

Society Proceedings

COMING MEETINGS

Am. Academy of Ophthal. and Oto-Laryn., Chattanooga, Oct. 27-29.
American Association of Railway Surgeons, Chicago, Oct. 15-17.
A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Delaware State Medical Society, Dover, Oct. 13-14.
Mississippi Valley Medical Association, New Orleans, Oct. 23-25.
Nevada State Medical Association, Reno, Oct. 14-16.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Virginia Medical Society, Lynchburg, Oct. 21-24.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Third Annual Session, Sept. 22-26, 1913

The President, DR. LEWIS H. TAYLOR, Wilkes-Barre, in the Chair

Officers Elected

Officers elected for the ensuing year are: president, Dr. Edward B. Heckel, Pittsburgh; vice-presidents, Dr. Henry D. Jump, Philadelphia; Dr. James Burns Anderson, Waynesboro; Dr. Jefferson H. Wilson, Beaver; Dr. U. B. Murray, Washington; secretary, Dr. Cyrus Lee Stevens, Athens; assistant secretary, Dr. William H. Cameron, Pittsburgh; treasurer, Dr. George W. Wagoner, Johnstown.

Place of next meeting, Pittsburgh, Pa.

Medical Legislation

DR. LEWIS H TAYLOR, Wilkes-Barre: "To elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws," is a clause from Article II of our ordinances to which I earnestly call your attention. Among important bills in which the state society is directly interested are the midwifery bill, and the amendments to the medical act of 1911 requiring additional qualifications before entering on the study of medicine and a year's service in a hospital after graduation. After Jan. 1, 1914, the State Bureau of Medical Education and Licensure will admit no applicants from within the state nor without, to its examinations until such applicant has completed a year of service in an approved hospital, nor will any one be admitted to begin to practice in the state through reciprocity who after that date has not fulfilled this requirement. The marriage law now in effect in Pennsylvania, unfortunately, does not make a health certificate from a physician necessary, although it provides that the applicant shall take oath that he or she is not afflicted with transmissible disease.

After November 1 the law pertaining to the employment of women will go into effect. The matter of hospital appropriations should be one of vital importance to every physician of the state. That the final determination of the amount to be given to individual hospitals should be left to the judgment of one man is wrong, even if that man does hold the high office of governor of the greatest state in the Union. Appropriations should be made on the basis of work done and the needs of the community rather than on the basis of political influence on legislators or on the judgment of the governor. Further, the problem of a national board of health is one on which we need the influence of a united medical profession.

Modern Ideals in the Care of the Insane

DR. WILLIAM K. WALKER, Pittsburgh: Insane people are sick people and their adequate care demands scientific methods at the hands of doctors and nurses. The "physiological conception" of insanity emphasizes the importance of the "treatment of the mind" by scientific methods. The housing and care of the insane in the state and county asylums of Pennsylvania are barbarous. In one institution only one out of seven male patients possesses more than one shirt. Seven per cent. only are sleeping between sheets; as many as three patients are sleeping in one room; patients are crowded in the corridors at night, sleeping on mattresses on the floor so close that they almost touch each other. Therefore the cure of mental maladies is difficult, if not impossible. Brutality of keepers is often excused and unpunished. In view of the conditions and the archaic oversight of the mentally afflicted, insanity is rapidly increasing. The first step in reform must be to remove such institutions beyond political control.

DISCUSSION

DR. EDWARD E. MAYER, Pittsburgh: It is too often forgotten that with early and proper treatment many of those who become hopelessly insane will be brought back to sanity. We should work for better facilities for this class of sick. Especially should we work for psychopathic hospitals for the acute and incipient case, for state supervision over all the indigent insane and for better psychologic and psychiatric training of the future physician. In Germany every university has a psychiatric clinic.

DR. WILLIAM J. HECKSON, Vineland: We know that 75 per cent. of mental diseases are hereditary. We must, therefore, devise some means of stopping the propagation of mental defects.

Relation of Venereal Disease to the Public Health

DR. EDWARD MARTIN, Philadelphia: The crusade against social evil should be an organized and concerted effort. It is interesting to read the sanitary records of the cases of chickenpox, measles, mumps and whooping-cough. When, however, either the plutocrat or the pauper reeks with gonorrhea or syphilis in its most virulently contagious form the health authorities are powerless, since these diseases have practically no official existence. They should be made reportable diseases. When the community wants such action it will be taken. An assurance of being reported and, perchance, of being distrained of liberty, would constitute a potent factor against exposure. On the education of the young in sexual matters much hope has been built. The consequences of venereal disease should be taught as a part of general hygiene in the school curriculum without undue emphasis on the sexual side of the subject. The most potent influences against sexual immorality are those of the home, the school and a busy, wholesome life.

DISCUSSION

DR. CHARLES J. HATFIELD, Philadelphia: I trust that some measure may be taken whereby the force of this society can be exerted in favor of the registration of these diseases. Further I hope that medical opinion will insist on having hospital facilities for the treatment of the disease.

DR. LAWRENCE LITCHFIELD, Pittsburgh: Public opinion must be educated and this obligation rests on the medical profession. The medium of communication is the newspaper.

The Problems of the Unfit

DR. EDWARD E. MAYER, Pittsburgh: The biologic and sociologic problems involved in medical care of the mentally defective are not sufficiently appreciated by the rank and file of medical practitioners. Not social workers and psychologists, but physicians, must deal with psychogenetic problems of psychoneurotics. Insistence on thorough psychiatric instruction in medical schools, and on efficient psychopathic wards or clinics, will enable the future physician to give wise counsel concerning the life of the psychopathic unfit and the mating of the impure and help to a greater extent in the reduction of vice. I would not decry the work of the practical psychologist, but the feeble-minded should be studied by the

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physician first of all. Our interest in the problems of the unfit should secure for Pennsylvania more adequate work in our state asylums, state supervision of all our insane, a better trained and larger medical staff in such institutions. Psychopathic wards in some hospital in every city are immediate necessities. I would ask the appointment of a committee for promotion of efficient laws on insanity, to be given, if possible, funds and power to act for the society. Such a committee need not be in conflict with the committee on public policy and legislation and could cope with some of the evils creeping into the public school inspection, the psychologic clinics, the juvenile courts and the moral commissions.

DISCUSSION

DR. THEODORE DILLER: There must be education, first of all, as Dr. Litchfield says, of ourselves, and then of the public. We are doing something regarding the elimination of the unfit from employment by a railroad company. It is required that employees abstain from alcohol and a plan of scrutiny is being carried out to determine whether they have any mental or physical disease rendering them unfit.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, Held at West Baden, Sept. 25-26, 1913

The President, DR. A. C. KIMBERLIN, Indianapolis, in the Chair

SYMPOSIUM ON CHRONIC BRIGHT'S DISEASE

Symptomatology and Diagnosis

DR. G. W. MCCASKEY, Fort Wayne: Bright's disease should be conceived of not simply as a lesion of the kidneys, but as a widespread pathologic process involving many tissues and organs. It is always of hematogenous origin, due to toxins circulating in the blood, and the kidneys suffer most because it is their function to remove these toxins, the irritant effect of which is, therefore, accentuated on these organs. The cardiovascular apparatus comes next in line, and owing perhaps to greater vulnerability, often suffers even more than the kidneys. The symptoms are the combined results of chronic intoxication with relatively slight kidney involvement, aggravated later by limitation of kidney function which forms a vicious circle, intensifying the toxemia which produces the kidney lesion. In making a diagnosis, the clinical history and physical examination are factors of first importance. The presence of albumin and casts does not prove Bright's disease, nor does their absence exclude it. A routine examination of the urine should be supplemented whenever necessary by functional kidney tests and analysis of the blood. The phenolsulphonephthalein test is the best routine method for determining kidney function in general, but is not parallel with the urea excretion, which, in common with the salt and water output, should be separately determined as a basis for classification of Bright's disease from the standpoint of renal pathology.

Vascular Changes Secondary to Bright's Disease

DR. C. F. NEU, Indianapolis: In regard to the treatment of the high blood-pressure and cardiovascular changes accompanying Bright's disease, the general tendency is to give such remedies as directly tend to bring about a reduction of blood-pressure, such as cardiac depressants and vasodilators. There is the danger, particularly in those cases of arteriosclerosis in association with chronic interstitial nephritis, that with the lowered blood-pressure there not infrequently takes place a fall in the urinary output, sometimes amounting to complete suppression. This is almost sure to follow the lack of blood supply to the kidneys, for the high blood-pressure is the result of nature's endeavor to insure an adequate circulation through the renal vessels. Fisher states that there is no justification in giving nitrites, etc., in chronic interstitial nephritis, unless we can show that while reducing the general blood-pressure we are not at the same time reducing the blood supply to the kidneys to a dangerous point.

Eye Lesions

DR. ALBERT BULSON, JR., Fort Wayne: Bright's disease often shows characteristic eye lesions. In the optic nerve the lesion manifests itself in reddening and partial obliteration of the disk. The retina and its immediate neighborhood are usually opaque and striated. In various localities in the retina, usually more numerous in the macular region, may be seen hemorrhages and white patches due to degeneration and inflammation. In the macular region these white patches are generally arranged in the form of a stellated figure. Anatomically these patches and areas of inflammation consist of cells filled with fat granules, dense masses of varicose nerve fibers, accumulations of fibrinous exudate, amorphous débris and masses of round cells consisting probably for the most part of white blood-cells. In most cases there are distinct signs of arteriosclerosis which may be seen by ophthalmoscopic examination. These signs consist of tortuosity of the smaller blood-vessels, white lines or streaks bordering the arteries, and indentation of the veins wherever the arteries cross. In the very early stages of a Bright's disease the fundus lesions are not prominent, but close inspection will often disclose a milky discoloration in the macular region due to inflammatory or degenerative changes.

Influence of Kidney Lesions in Determining the Selection of Anesthetics and Surgical Risks

DR. MILES F. PORTER, Fort Wayne: I hesitate to use large quantities of urea and quinin to produce local anesthesia in a patient with chronic Bright's disease. The sum-total of the effect on the kidneys of an operation done under general anesthesia in the presence of Bright's disease may be beneficial. This is especially true of operations for the relief of obstruction and infection of the bile tracts and for the relief of light conditions in the urinary tract. In acute surgical conditions that immediately threaten life in patients with chronic Bright's disease, the existence of the latter would have no influence in deciding the question as to operation, but should govern the choice of the anesthetic and be duly considered in concluding as to the extent of the operation.

Given a case of acute perforation of the stomach in a patient with chronic Bright's disease, there would be no hesitation as to the necessity for immediate closure of the perforation, but one would perhaps hesitate to excise the ulcer area and do a gastroenterostomy. Again, there should be no hesitancy in opening an acute appendiceal abscess in a chronic nephritis, but the kidney lesion would probably lead one to contend with simply opening and draining the abscess under local anesthesia.

I would like to urge the importance of inquiring into the kidney function in all cases prior to giving a general anesthetic or performing a surgical operation, and to emphasize the importance of preliminary treatment in all cases showing imperfect kidney function, except in those cases in which the demand for surgery is immediate.

DISCUSSION ON BRIGHT'S DISEASE

DR. FRANK B. WYNN, Indianapolis: The profession has been spoiled in the matter of diagnosticating chronic nephritis. It is usually discovered by accident in an examination for life insurance, or only after the patient has the symptom-complex well developed. The quick and easy route to diagnosis, which the urine seems to afford, has led us to overlook and undervalue the early clinical phenomena of the disease. Undue weight has been given by the practitioner to the urine as affording a sure index both as to the type of kidney lesion and the prognosis. The symptomatology, as described by the essayist, showing toxic effects on the part of the nervous system, the gastro-intestinal apparatus, urinary function and eye, give early warnings, that we are prone to call by other names than nephritis. Much has been said of the importance of recognizing pretuberculous states; may it not be just as incumbent on us to be alert for prenephritic states? We should be more frequently on the lookout for the first symptoms of Bright's disease, or for those clinical findings which we know often lead to the development of the disease, such

as high nervous tension with increased blood-pressure. In my own experience I have often found that cases which at first I was prone to consider as neurasthenic proved on prolonged study to be incipient nephritis. If we were more cautious in the early recognition of these cases, our views as to prognosis would not be so bad.

Of the early symptoms which should excite our suspicion and careful investigation, none is commoner than a neurasthenic train of manifestations. The individual complains of tiring easily; has lost his former snap and interest in affairs; suffers from indigestion. Persistent anemia should always be carefully investigated with the thought of a possible beginning Bright's disease. A prominent and tortuous temporal artery is very suggestive. Other less frequent early symptoms are: "dead fingers" or feeling as if benumbed by cold; cryesthesia or great sensitiveness to cold; cramps in the calves of the legs and electric light shocks; vertigo; anorexia; pollakiuria or frequent micturition, followed later by polyuria. One or more of these symptoms should always lead us to make a careful study of the urine and a critical physical examination and clinical study of the case.

DR. H. H. MARTIN, Laporte: For some time, I have watched with interest the condition of the kidneys in patients suffering with intestinal stasis. I am firmly convinced that many of our so-called cases of Bright's disease are secondary to intestinal stasis, and that early recognition of this fact will oftentimes enable us to improve our prognosis. The urinary picture of a kidney being overwhelmed by intestinal poisons is very constant; in fact, so constant and so similar that it is quite possible in many cases to make a diagnosis of the primary condition from the urinary findings alone.

DR. F. C. HEATH, Indianapolis: I want to emphasize the prognostic significance of the eye lesions in nephritis. Dr. Bull, of New York, a great many years ago, followed up a large number of cases and found that nearly all these patients died within three years of albuminuric retinitis, many of them inside of a year, and quite a number inside of six months. Recently, I have been able to get complete histories of ten cases, many of whom died within two years after the discovery of the retinitis, some of them within six months. One patient had pronounced albuminuric retinitis, but complained of nothing, except a slight smothering sensation in the chest, and yet his urine was heavily loaded with albumin. The doctor in this case made a serious mistake in using too active medication, namely, irritating diuretics which shortened the man's life. He died within six months after the discovery of albuminuric retinitis.

DR. JOSEPH RILUS EASTMAN, Indianapolis: After some experience in the use of the phenolsulphonephthalein test, I have come to the conclusion that it misleads as often as it leads to a better understanding of the kidney lesion. Nobody knows whether the standards of Geraghty and Rowntree are precise or not; they are entirely arbitrary. The urea test is more precise than any color test. When we deal with urea we are dealing with a normal, organic, metabolic product of the kidney. When we deal with phenolsulphonephthalein or indigocarmin or methylene blue, etc., we are dealing with substances which are entirely foreign to the kidney. The kidney reacts in a certain way to the coloring material; because the kidney eliminates, for instance, the phenolsulphonephthalein with certain rapidity, it is no evidence that the kidney can eliminate the abnormal metabolic products with the same rapidity.

DR. GEORGE D. KAHLO, Virginia: We not only have the urinary findings, which we formerly relied on too much, and from which many errors in judgment as to diagnosis and prognosis inevitably occur, but we have the evidence as shown in the vascular system, in the cardiac changes, in the retinal changes and nervous system. The question is, what causes this change, and what are we going to do for the patient after the condition has been recognized as a beginning nephritis? The most important etiologic factor in nephritis, according to Dr. Martin, is intestinal stasis. How often do we find intestinal conditions, whether they be associated with enteroptosis, or whether they be due to an atonic condition of the intestinal wall? We have in practically all these cases a toxic condition—an auto-intoxication, if you wish to call it, but there is a toxemia. There is a beginning nephritis, and the earlier we recognize the toxemia, the better, then we come to the point of how far the kidney is performing its function. We can tell that the structure of the kidney and of the vascular system is endangered by the presence in the system of toxic substances which can be avoided by a proper mode of diet, and what is of primary importance in this connection is the regulation of the diet. It is not merely the restriction or exclusion of proteins from the dietary, but a question of the amount of food that people should eat and the conditions under which the food is prepared, and whether the patient has a normal functionating gastro-intestinal tract to eliminate waste product. It is the accumulation of this waste in these toxins that is the source of irritation to the vascular system, and in connection with which you will find evidences in the kidney pathology, as shown in the microscopic findings of the urine.

DR. LEONARD F. SCHMAUSS, Alexandria: I am surprised that no mention has been made of decapsulation of the kidney in connection with the treatment of chronic Bright's disease. I operated on a patient ten years ago for parenchymatous nephritis. The patient had been confined to bed for six or eight months with general anasarca, large white kidneys. I operated on her. She began to improve after operation and continued to do so. The albumin and casts disappeared. This woman is alive and well to-day.

DR. THEODORE POTTER, Indianapolis: In our discussion of so-called functional tests of the kidney, we seem to have overlooked one of the simplest, one of the most natural methods, and one that is universally valuable, and that is putting the kidney under a little strain by exercise, and not by testing it with various sorts of things. If you have reason to suspect the early stage of this disease, examine the patient. If you examine the first urine which that patient passes in the morning, and the next few hours, very frequently you will find it clear from the ordinary evidences of nephritis, but during the middle and active part of the day, they will show up more or less, or if you have the man walk one or two miles before he passes urine, under that little strain, if you examine the urine, you will find kidney abnormality.

Manner of Growth and Surgical Treatment of Cancer of the Breast

DR. W. D. GATCH, Indianapolis: Unfortunately most women with cancer of the breast come to the surgeon too late for a permanent cure. What is the best treatment for these advanced cases? Should cases with extensive involvement of the axillary lymph-nodes, or with ulceration of the growth and skin metastases be operated on? I believe that no operation with the knife should be done on such patients, unless there is good hope that the growth can be so nearly completely excised that local recurrence will not take place. Mere excision of the primary tumor with perhaps a partial excision of the axillary lymph-nodes simply excites the growth of the cancer, shortens the patient's life, and makes her condition more miserable. If such excision with the knife is not possible, and a painful ulcerated tumor requires removal, the same can be excised with the cautery or with the knife, and the wound immediately cauterized. This procedure does not accelerate the growth. The wound left after it can be given vigorous Roentgen-ray treatment. By these measures it is frequently possible to limit the local growth so that the patient is kept free of pain till she is relieved by death caused by internal metastases.

Any operation which is not followed by an external recurrence of the growth is successful and well worth while.

With breast cancer, as with every other form of malignant growth, the success of operation depends largely on how early in the course of the disease operation is done.

DISCUSSION

DR. PAUL MARTIN, Indianapolis: It has been my personal experience and observation that when a woman comes with

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carcinoma, she has had it for ten or twelve months or longer before she consults a physician, and then as the history shows, the physician has kept her under observation for an equal length of time, so that it may be eighteen or twenty months before she goes to the surgeon or before she is brought to him. This lapse of time is the only period the patient has for relief. These patients come too late for operation to do much, if any permanent, good.

DR. JOSEPH RILUS EASTMAN, Indianapolis: There is only one man prominent in the United States, Dr. John B. Murphy, who still advocates that the pectoral muscles should be left in, but I am sure that Dr. Murphy has arrived at that conclusion in very much the same manner that Lorenz arrived at his position relating to the bloodless treatment of congenital hip dislocation. He had an intractable eczema on his hands, he practiced surgery before the day of gloves, could not sterilize his hands, and therefore had to do the operation in a bloodless way. Dr. Murphy advises cleaning out the axilla, using the pectoral muscle as a pad, so that the contraction scar will not lead to edema of the arm, and he is so accustomed to doing this that he continues to do it in the face of anatomic reasons for the removal of the pectoral muscle. If cancer is diagnosticated early when the diagnosis is difficult, the cure is not far to seek. If we wait until the diagnosis is so easy that any bricklayer can make it, then a cure of the condition will be extremely difficult or impossible.

DR. DENNY, Indianapolis: The removal of the breast widely with the pectoral muscles and fascia, cleaning out the axillary lymph-nodes, offers the only chance of saving the lives of these patients until we know more about the cause of the disease. I cannot see any hope of diagnosticating precancerous conditions in the tissues of the body and operating on them. We certainly cannot make such a diagnosis in the breast. The cancerous nodules become deep-seated and we have no evidence on the surface of injury. We cannot remove all moles and warts, but one thing we can do, and should not be afraid of making a mistake, is to remove a breast occasionally for a benign condition which later may become malignant. Such a risk is preferable to waiting for the possibility of malignancy to occur. These women should be educated to consult physicians earlier.

DR. E. D. CLARK, Indianapolis: The best way to prevent cancer of the breast is to remove tumors of the breast when they are found regardless of the question of whether they are benign or malignant. They are abnormal, and they ought to be taken out. This can be done without much mutilation of the breast if we are sure it is cancer. Practically all operations devised for cancer are failures—at least, in my hands. It is only in those cases that I get early and operate on them, regardless of whether the tumor is benign or malignant, that I have any hope of curing.

DR. MILES F. PORTER, Fort Wayne: We want to forget that cancer is a disease of middle life. It is oftentimes a disease of early life. I have seen several cases of cancer of the breast and many cases of cancer of the uterus in women before 30 years of age.

About the closure of the wound, I think we should be reasonable in all things. If, after a radical operation, you can say to the patient, you can get out of the hospital with a closed wound in a week, you will have an opportunity to do a great many more radical operations than you would have if you cannot make that promise. You will succeed in operating in more cases early than in operating on patients who wait three or four months for a wound to close, thereby inducing by irritation of the skin another potential cancer in the case. No man with experience would hesitate to make a sufficiently wide wound to remove the cancerous disease. On the other hand, we should not forget it is the part of wisdom to close the wound if we can, and in the vast majority of cases we can close it without danger of local return.

DR. DAVID ROSS, Indianapolis: I agree with Dr. Porter that there are many cases that come to us in which the radical operation, so-called, is not needed, and yet in that statement I realize it is also impossible to tell. There is a great deal of argument which can be advanced in favor of the position taken by Dr. Gatch in his paper, namely, with early removal you have a chance to save the patient's life, and thorough radical work should be done. I have in quite a number of cases, in which patients would not submit to the radical operation, removed the breast and subsequently treated it with the cautery. I would not undertake the treatment of any tumor that is operable with the Roentgen ray, but I do believe that after a thorough dissection has been made, not only in the incipient cases, but also in those that are inoperable, so-called, by removing the immediate cancerous tissue and cauterizing as may be necessary, then afterward treating the case with the Roentgen ray, we render our patients not only more comfortable but prolong their lives, and as often happens in the aged, we may prevent the recurrence of some other condition which takes the patient away.

DR. JAMES H. FORD, Indianapolis: Early diagnosis is a sine qua non. Every woman should know and be able to teach her children that their breasts should be examined carefully by a competent man at periodical intervals. Dr. Porter says cancer is not always a disease of middle life. My earliest case was in a girl 28 years of age, who had carcinoma of the breast.

DR. THEODORE POTTER, Indianapolis: A number of years ago Dr. W. W. Keen of Philadelphia called our attention to the frequency with which certain lesions became malignant, such as warts, moles, etc. Bloodgood said practically that every cancer of the skin was preceded by some recognizable lesion there. If that is so, it is a very important thing, and whether such a thing is possible or not, every practitioner should know that there are many instances in which these comparatively trivial lesions of the face, the neck and hands, such as moles and warts, do subsequently develop into malignancy.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

September, I, No. 3, pp. 193-262

1 Free-Living and Parasitic Amebae and Their Relation to Dysentery. E. R. Whitmore, New York.
2 Disease Carriers Among Schoolchildren. E. O. Jordan, Chicago.
3 Anopheles and Malaria. F. Knab, Washington, D. C.
4 Serums and Vaccines in Prevention and Treatment of Undulant Fever. A. P. Hitchens, Glenolden, Pa.
5 Cultivation of Malarial Plasmodia (Plasmodium Falciparum) in Vitro in Blood of Diabetic without Addition of Dextrose. C. C. Bass and F. M. Johns, New Orleans.

Archives of Internal Medicine, Chicago

September 15, XII, No. 3, pp. 245-355

6 *Relation between Non-Protein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis. C. Frothingham, R. Fitz, O. Folin and W. Denis, Boston.
7 *Case of Vegetative Endocarditis Caused by Hitherto Undescribed Spirillum. A. R. Lamb, New York, and F. W. Paton, Bradford, Pa.
8 *Case of Spirillum Infection. W. B. Soper, New York.
9 *Studies on Sulphur Metabolism. I. Urinary Sulphur Partition in Various Diseases. N. Stadtmüller, New York, and J. Rosenbloom, Pittsburgh.
10 *Reaction of Salomon and Saxl as Diagnostic Test for Carcinoma. I. Greenwald, New York.
11 *Protein Metabolism of Normal Pregnancy. J. R. Murlin and H. C. Bailey, New York.
12 *Renal Complications of Hematin Intoxication and Their Relation to Malaria. W. H. Brown, Chapel Hill, N. C.
13 *Use of Pituitary Extract in Obstetrics. F. C. Harrison, Toronto.
14 Treatment of Syphilitic Affections of Central Nervous System with Special Reference to Use of Intraspinous Injections. H. F. Swift and A. W. M. Ellis, New York.
15 *Value of Edestin and Peptone in Diagnosis of Cancer of Stomach. J. C. Friedman and W. W. Hamburger, Chicago.

6. Non-Protein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis.—The authors found that in acute uranium nephritis in rabbits the excretion of phenolsulphonephthalein in the urine and the

amount of non-protein nitrogen and urea in the blood vary from the normal during the course of the nephritis and return to normal as the nephritis heals. The degree of variation from the normal agrees on the whole with the amount of destruction demonstrated histologically in the kidney. The phenolsulphonephthalein excretion in the urine drops rapidly to its lowest point and returns rapidly to normal with recovery of the kidney. Non-protein nitrogen and urea accumulate gradually in the blood and return to normal gradually, as the kidney recovers. In general, the authors' tests parallel each other as indicators of renal function, but have this essential difference: the amount of phenolsulphonephthalein excretion shows the renal function at the moment; the amount of non-protein nitrogen and urea in the blood is rather a measure of an accumulating difference between the amounts of waste nitrogen produced in the metabolism and the amounts eliminated by the kidneys. The time element, the duration of the condition, is therefore an important factor in this test.

7. **Vegetative Endocarditis.**—The organism described by Lamb and Paton seems to be fairly well established as the cause of the disease. The blood-culture results were very satisfactory. On two separate occasions, with about ten days intervening, three broth flasks showed a pure growth of the organism. A third culture, the first one taken, was discarded as sterile on the fifth day. This was two days before the second culture showed a growth and one day before the last culture was positive. It is possible that had it been kept, it, too, would have been positive. At necropsy, the same organism was obtained from the blood, liver and cardiac vegetations, several times in pure culture, in the other instances in association with the usual autopsy organism, the colon bacillus. Smears of the vegetations showed the organism very definitely. No other variety of bacteria was seen in these smears. Sections of the vegetations also showed the organism very well and again no other bacteria could be identified. The animal inoculations were not so satisfactory. They were carried out on only a limited scale and gave only negative results. As mentioned above, these experiments could not be repeated owing to the loss of the organism. One of the striking things about the case was the fact that the blood-cultures did not become positive until after the time when they are usually discarded. The authors have been unable to find any reference to an organism similar to the one found in this case and have ventured to give it the name *Spirillum surati*, after the name of the locality in which the disease was presumably contracted. The biology and morphology of the organism is described in detail.

8. **Case of Spirillum Infection.**—This case was, in the beginning, considered as having its origin below the diaphragm as a process which had extended upward. It was also presumed to be due to some ordinary pyogenic organism. The assumption that the original infection was below the diaphragm was probably correct, but repeatedly sterile cultures and the absence of any organisms, save the spirilla, from the smears make the supposition of a pure spirullum infection strong. Unfortunately, the condition of the patient was such that it seemed inadvisable to take a blood-culture.

9. **Urinary Sulphur Partition in Various Diseases.**—The lowest average total sulphur excretion (0.88 gm. per day) was found by the authors in a series of thirteen cases of carcinoma. The same series showed also the lowest average neutral sulphur excretion (0.20 gm. per day). The proportion of the neutral sulphur to the total sulphur in this group is considerably higher than the normal proportion of the total sulphur excreted as neutral sulphur. However, the relation of the neutral sulphur to the total sulphur is still higher in the group of seventeen various diseases (not including diabetes or carcinoma). In this group we find that both the relative and absolute amounts of total sulphur and neutral sulphur to be higher than in cancer and diabetes. Eight out of nine cases of diabetes studied showed an increased excretion of neutral sulphur, both in amount and in relation to the total sulphur excreted. From their experience the authors think it is a precarious undertaking to diagnose a malignant tumor on the basis of the absolute or relative amount of the neutral sulphur excreted in the urine, or from the daily excretion of total sulphur.

10. **Reaction of Salomon and Saxl as Diagnostic Test for Carcinoma.**—No differences were found by Greenwald to exist between the urines of patients with carcinoma and other diseases and normal individuals, in the amount of barium sulphate, either absolute or relative to the total sulphur, precipitated by the procedure of Salomon and Saxl. It is therefore concluded that the test is of no value in the diagnosis of carcinoma.

11. **Protein Metabolism of Normal Pregnancy.**—In general, the authors believe that peculiarities in the composition of the urine of normal pregnancy as regards its nitrogenous constituents may be accounted for on purely physiologic grounds.

12. **Renal Complications of Hematin Intoxication.**—Brown found that mild grades of hematin intoxication produce degenerative lesions in the kidneys and the urine shows a trace of albumin and casts. Severe grades of hematin intoxication result in extensive dilatation, injury and occlusion of the renal vessels by hyalin thrombi or emboli, all of which are most pronounced in the glomerular vessels. Extensive degeneration and necrosis of tubular epithelium, hemorrhages and even anemic infarcts result from these vascular lesions. In such cases the urine presents the characteristics of an acute nephritis. In rare instances of severe hematin intoxication, hemoglobinuria may occur. During the period of recovery from acute hematin poisoning and in chronic poisoning, the kidneys show both degenerative and proliferative processes. The glomerular tufts shrink and the capsular space and tubules are more widely dilated. The tubular epithelium shows degeneration and active regeneration with abundant mitotic figures. There are foci of round-cell infiltration and of connective tissue increase. There is also a slight diffuse increase in connective tissue. The urine is increased in amount and contains albumin with hyaline and granular casts. The renal complications of hematin intoxication are believed to be due primarily to dilatation, injury and occlusion of renal vessels under the action of hematin.

13. **Pituitary Extract in Obstetrics.**—Harrison determined experimentally that pituitary is of great value in cases of weakness in uterine movements after the soft parts are well dilated. Failure in these cases is rare, probably less than 1 per cent. The later in labor, but before delivery, the more striking the effect. The danger to the child and mother is very slight. As an addition to some mechanical method, e. g., the Champetier de Ribes' bag, it is of great value in bringing on premature labor or abortion. In the former case it may be sufficient in itself, but there is some risk of tetanus of the cervix, or of the uterus, especially when repeated injections are required. For delivery of the placenta its use is accompanied by the danger of tetanus uteri and retention. In post-partum hemorrhage a considerable percentage of failures may be expected.

15. **Diagnosis of Cancer of Stomach.**—The authors summarize their findings as follows:

1. Edestin is a valuable aid in controlling the proteolytic cleavage of stomach contents.
2. The proteolytic cleavage of stomach contents is due in most instances to regurgitated trypsin, although leukocytes and bacteria probably play some rôle.
3. By the use of edestin with peptone it is possible to materially reduce the errors in non-cancerous and normal cases due to trypsin, leukocytes and bacteria.
4. The edestin-peptone method possesses distinct value in the diagnosis of cancer of the stomach and is of considerable service in the differential diagnosis between benign and malignant anacidity.
5. High peptolysis with low proteolysis speaks for carcinoma; high peptolysis with high proteolysis against carcinoma.
6. The edestin-peptone method, as in other laboratory tests, is of practical value only when taken in conjunction with the usual clinical and laboratory findings.

Colorado Medicine, Denver

September, X, No. 9, pp. 255-280

16 Aberrant Renal Vessel. W. M. Spitzer, Denver.
17 Purpura Fulminans. J. W. Amesse, Denver.
18 Close Relation of Dentist to Physician. W. O. Weber, Greeley.
19 Amnesia. E. Delchanty, Denver.

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Georgia Medical Association Journal, Augusta

September, III, No. 5, pp. 145-180

20 Etiology of Insanity Based on Study of Admissions to Georgia State Sanitarium during 1912. R. C. Smith, Milledgeville.
21 Treatment of Chorea with Rheumatism Phylacogen. E. B. Block, Atlanta.
22 Criminal Insane. E. M. Green, Milledgeville.
23 Plea for Medical Inspection of Our Country Schools. L. C. Allen, Hoschton.
24 Stools of Children and Their Significance. B. B. Jones, Metter.
25 Some Reasons Why Doctors Are Not More and Better Recognized by Other Professions and the Laity. A. L. R. Avant, Savannah.

Journal of Infectious Diseases, Chicago

September, XIII, No. 2, pp. 171-349

26 *Variation in Type of Infectious Disease as Shown by History of Small-Pox in United States, 1895-1912. C. V. Chapin, Providence, R. I.
27 Equine Piroplasmosis in Panama. S. T. Darling, Ancon, C. Z.
28 *Virus of Rabies, Freed from Cells of Host and from Contaminating Organisms. D. W. Poor and E. Steinhardt New York.
29 *Organism of Rabies and Experiments in Its Artificial Cultivation. V. H. Moon, Chicago.
30 Relation of Nitrates to Putrescibility of Sewages. A. Lederer, Chicago.
31 Brilliant Green Broth as Specific Enrichment Medium for Paratyphoid-Enteritidis Group of Bacteria. J. C. Torrey, New York.
32 *Toxicity of Human Tonsils. G. F. Dick and W. H. Burmeister, Chicago.
33 Spirochete Associated with Infections of Accessory Sinuses. R. Tunnicliff, Chicago.
34 *Anaerobic Organism Associated with Acute Rhinitis. R. Tunnicliff, Chicago.
35 *Anaerobic Bacillus Isolated from Case of Chronic Bronchitis. R. Tunnicliff, Chicago.
36 *Cultivation of Virus of Vaccinia. E. Steinhardt, C. Israeli and R. A. Lambert, New York.
37 Complement Fixation Test (Gay's Modification of Besredka Method) in Differentiation of Acid-Fast Bacilli. W. H. Harris and J. A. Lanford, New Orleans.
38 *Treatment of Tetanus. C. T. McClintock and W. H. Hutchings, Detroit, Mich.
39 Typhoid Colon Intermediate Group of Bacilli, with Special Reference to Complement-Fixation Reactions. J. A. Kolmer, W. W. Williams and A. M. Raiziss, Philadelphia.

26. **Variation in Type of Infectious Disease.**—The evidence studied by Chapin points to the existence in North America during the last fifteen years of two quite distinct strains of small-pox, one the long-recognized type of the text-books, the other marked by decided mildness of symptoms. The latter, Chapin believes, is probably a mutation from the former. Both strains tend to breed true, and though it is possible that a few outbreaks of the severe type may have developed from the mild type there is no conclusive evidence that they have been numerous or extensive.

28. **Virus of Rabies, Freed from Cells of Host.**—From their microscopic examinations Poor and Steinhardt conclude that the virus of rabies as it exists in the submaxillary gland, though possibly visible, is probably of no distinctive form. By the use of various staining methods, by frequent examinations of many viruses with both light and dark fields, with high magnification, no distinctive formed elements were seen. In all cases small granules were readily found. Occasionally there were rings with a central point and cilia-like structures, but these were also found in the control extracts of normal submaxillary glands. Occasionally it seemed that there were more granules in the rabid than in the normal extracts, but no conclusions could be drawn. Experiments on the possibility of obtaining a specific agglutination of the virus of rabies as it occurs in the gland extract from an antirabic serum, obtained by the injection of rabid brain, were tried. By this method it was hoped to exclude tissue reactions. In some cases it seemed as if there were greater clumping of granules in the rabid extracts than in the control normal extracts. Further work is now being carried on along this line and with the opsonic technic, with the possibility of a specific phagocytic action locating the virus in the leukocytes.

29. **Rabies and Experiments in Artificial Cultivation.**—Dogs were inoculated by Moon with street rabies by the direct injection of emulsion of rabid brain into a nerve trunk. Various nerves were employed, but most satisfactory results were obtained by introducing a long needle into the orbital cavity below the eyeball and making the injection at the point where the optic nerve emerges through the optic foramen, the operation being made under ether anesthesia. The animal was then observed closely and at the first sign of unusual restlessness or excitability, usually after twelve to eighteen days, it was killed and the brain taken out under the most careful aseptic precautions. Sections about 3 millimeters in thickness were taken through Ammon's horn and adjacent tissue and incubated in sterile dog-serum in tubes with a layer of olive oil above the serum. The olive oil served the double purpose of preventing evaporation and producing partial anaerobic conditions.

Before placing the brain tissue in the tubes a small bit of gray matter was cut from each section and a smear made as a control for future comparison. At intervals of twenty-four hours tubes were opened and specimens made and compared with their respective controls. The chief difficulty lay in determining the stage at which the dog should be killed and the incubation *in vitro* begun. When this stage was chosen opportunely either no Negri bodies would be seen in the freshly stained preparation or the forms would be very minute, ranging from 1 to 3 microns in diameter. Marked increase in both number and size was evident in twenty-four hours in most cases and the development continued until the tissues became so degenerated from incubation that satisfactory staining was difficult. After forty-eight or seventy-two hours the larger bodies attained a diameter of from 6 to 9 microns, while definite increase in numbers was evident, and the smaller forms were present in abundance. The bodies showed the characteristic dark granules and staining properties, but greater irregularity of form was evident than the Negri bodies show under ordinary conditions.

Controls of normal brain tissue incubated under the same conditions showed no forms which would be mistaken for Negri bodies by an experienced observer. Equally satisfactory results were obtained when the sections were incubated in Ringer's solution instead of serum. Moon believes that these results lend additional support to the view that the Negri bodies are forms in the life cycle of a protozoan organism as against the view that they are the results of the reaction of the living nerve cells to the disease. He suggests that the increase in the size and the number of the bodies perhaps might result from a progressive chemical change in the brain substance, but belittles the notion that the bodies are the results of this experiment.

32. **Toxicity of Human Tonsils.**—The authors endeavored to determine first, whether or not there are toxic substances in the tonsils; second, if present, the nature of those substances, and third, the factors influencing the degree of toxicity. The material for study was obtained from a series of thirty-two tonsillectomies. The tonsils were received in sterile gauze. Extracts were then made by grinding them in a mortar with 10 c.c. of salt solution. The extract thus obtained was either centrifuged or filtered through paper and examined bacteriologically as follows: Blood agar plates were made by adding 1 c.c. of goat blood to 7 to 9 c.c. of agar; the plates were allowed to harden, and one drop of extract to be examined was smeared over the surface of two plates by means of a platinum spatula; after incubating, eighteen to twenty-four colonies were examined grossly and microscopically. The extracts were injected into animals. It was noted that of animals injected with toxic extracts the rabbit usually exhibited, besides the symptoms noted, a marked exophthalmos and contracted pupils. Post-mortem examinations were made in nearly all cases. In no instance were evidences of embolism or thrombosis found. The coagulation of the blood was delayed.

The extracts were prepared and injected in some cases immediately on removal of the tonsils. A few of them were prepared after freezing the tonsils for twenty-four hours; most of them were made a few hours after removal. The toxicity was apparently not affected by these varying conditions. The symptoms and changes in the animals resemble very much the conditions found in anaphylactic shock in rabbits, guinea-pigs and dogs. A few tonsils were apparently harmless in the doses of extract used. A search for the underlying factors was made by comparing the toxicity with the

bacterial flora, structural changes and the amount of sediment, i. e., parenchyma, obtainable. The bacterial flora was the only factor that seemed to bear any relationship to the toxicity of the extract. In ten cases in which relatively non-toxic extracts were obtained there was only one in which typical punctate hemolytic streptococcus colonies were present. In the remaining twenty-three cases, from which highly toxic extracts were obtained, punctate, hemolytic, streptococcus colonies occurred fifteen times in large numbers. In three additional cases large colonies of hemolytic streptococci were found. In the remaining five a hemolytic staphylococcus was found three times. Hence the toxic extracts were usually obtained when typical hemolytic streptococci were found on the plates in large or predominating numbers.

34. **Anaerobic Organism Associated with Acute Rhinitis.**—The organism described by Tunnicliff has been found during the early stages of acute coryza, while the discharge is mucoid in character. It has been observed in all cases of acute rhinitis studied, twenty-five different persons having been examined during the acute attack, one during each of four attacks and another during each of five, so that altogether Tunnicliff has made observations during thirty-two distinct attacks. Many examinations were made during the course of the infection in nine of these cases. In the case of an accompanying pharyngitis, tonsillitis or bronchitis, the organism is also found, sometimes in large numbers in the sputum and mucus of the throat. It was also seen in a case of acute pharyngitis unaccompanied by rhinitis. It was present in small numbers in the nose in five cases examined when the rhinitis was disappearing. It was not found in twenty normal persons, in one case of suspected syphilis and one case of diphtheria. A few were observed in one normal nose.

The same organism has been seen in one case of chronic pharyngitis, being practically the only organism present, and in three cases of chronic rhinitis. In some of the lower animals it appears to be present since it was found in the noses of several normal guinea-pigs and rabbits examined, but seen only once in normal dogs. It is not present in the purulent discharge common in rabbits. This same organism was observed in the mucoid discharge from the nose of a dog.

Some of the organisms seem to be flexible and move a little, but most of them appear immobile. They vary from 5 to 8 microns in length and from one-third to one-half of a micron in width; the ends are pointed or slightly rounded; generally the bodies are slightly curved, but may be straight, wavy or bent at one end. A ring and an enlargement in the form of a ball are occasionally seen at one extremity. Sometimes an arrangement in rosettes and bunches occurs, the organisms radiating from a central mass. This organism is a strict anaerobe growing at 37 C. slowly—at least at first. Tunnicliff has isolated it in pure culture eight times, four times from the human nose, three times from the throat and once from the nose of a normal rabbit. It has been cultivated several other times but not isolated in pure culture. It was isolated on the surface of goat blood agar in large test-tubes, the agar being slightly alkaline to phenolphthalein. The cultures were made anaerobic by the Wright method of saturating the cotton stopper with a strong solution of pyrogallic acid and a 5 per cent. sodium hydroxid solution, closing the tube with a tightly fitting cork and sealing it with paraffin. A slight rhinitis has been produced several times in human subjects (twice in Tunnicliff, once in a laboratory assistant) by swabbing a nose which was free from this organism with a pure culture. A pharyngitis accompanied the rhinitis twice. Cultures were made twice and the organisms isolated in pure culture both times.

35. **Bacillus Isolated from Chronic Bronchitis.**—In making bacteriologic examinations of the sputum from a case of chronic bronchitis, suspected of being tuberculous, Tunnicliff found an anaerobic bacillus to be the predominating organism. The bacillus in the sputum is about two microns long by one-fourth micron in width. It was found in enormous numbers, generally in clumps. Some bacilli were seen inside of leukocytes. They were found as a rule in grayish masses in the sputum. Although resembling tubercle bacilli a good deal, they were not acid-fast nor did they retain Gram's stain. They stained uniformly and deeply with carbolgentian-violet, faintly with methylene blue, having a beaded appearance, as they did with carbol-fuchsin. With Giemsa they stained blue. The bacillus is a strict anaerobe, growing slowly, especially during the first generations. The first time it was isolated growth did not begin until the fifteenth day after inoculation. It was isolated on goat blood agar, the agar being slightly alkaline to phenolphthalein. The bacillus is not motile and does not possess a capsule. If inoculated in large numbers the bacillus appears to be toxic to guinea-pigs, but not pathogenic. Repeated intraperitoneal injections in a guinea-pig have so far produced no effect.

36. **Cultivation of Virus of Vaccinia.**—Briefly, from their work thus far on the application of Harrison's method to the cultivation of tissue *in vitro* to corneal tissue plus the virus of vaccinia, the authors are able to state that there is a multiplication of the virus of vaccinia, although no specific vaccine bodies are found in the preparations.

38. **Treatment of Tetanus.**—McClintock and Hutchings believe that the following conclusions are warranted by their experiments: Amputation after the appearance of symptoms is of no value. The toxin appearing in the blood-stream is self-limited even in the fatal cases. There is little if any value in the phenol treatment of the disease. If there is any gain, the authors believe it is probably due to the sedative action of the drug and not to any direct action on the disease process, and that this result may be obtained with greater certainty by other drugs. The magnesium sulphate as used in their experiments subcutaneously was of no value. Antitetanic serum alone has a definite, although usually insufficient, curative effect. From the observation of a large number of animals and quite a number of human beings dying of tetanus, the authors thought that the exhaustion due to the muscular contractions is a large factor in producing fatal results. For this reason much of their work has been given to the attempt to hold these convulsions in check. The presence of a large amount of toxin in the blood several days (in sheep it can be demonstrated four days) before the onset of clinical symptoms makes it imperative that a method be devised for easily determining this. With such a method it is quite probable that a large proportion of tetanus cases could be saved. At present the best that can be done in the treatment of tetanus is to neutralize the toxin with repeated doses of serum while controlling the muscular spasm with some drug.

Journal of Nervous and Mental Disease, Lancaster, Pa.
September, XL, No. 9, pp. 553-616

40 *Blindness and Tabes: New Method of Curing Ataxia. W. J. M. A. Maloney, New York.
41 Contralateral Oppenheim and Gordon Reflexes, with Observations in Two Cases. A. Myerson, Boston.
42 Psychic Epilepsy Occurring without Other Epileptic Phenomena. G. E. Price, Philadelphia.
43 Reflex Frequency and Its Clinical Value. W. B. Swift, Boston.

40. **Blindness and Tabes.**—Neither the occurrence of optic atrophy nor of blindness, Maloney points out, retards or influences the evolution of the structural changes which accompany the tabetic process in the spinal cord and elsewhere. The absence of spinal implication in primary tabetic optic atrophy is due to the accident of the localization of the morbid process, and not to any inhibitory influence arising from that localization. The law governing the distribution of the tabetic lesions is as follows: If special fragility exist at any site, and the amount of the tabetic poison be limited, then the site of election for the initial process is the fragile part and it will be the main site of the disease; if no special fragility be present, the disease will be diffuse; if special fragility occur and a large amount of tabetic poison be present, then the fragile is the primary site of the process which later will become generalized, spreading from part to part in the order of the least resistance.

The action of a diminution in visual acuity on ataxia Maloney postulates as follows: Improvement in ataxia will result from a lack of vision after an adequate interval has elapsed: (a) When incoordinating lesions remain stationary;

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and the mental capacity for training is not destroyed by cerebral disease. (b) Even if the structural tabetic lesions leading to incoordination extend, provided that the effect of this extension be less than the compensating influence of the blindness. No change in the ataxia will follow loss of vision if the advance of the incoordinating lesion just neutralizes the beneficial influence of the blindness. Obviously this stationary phase can be but temporary. Increase of ataxia in spite of the blindness arises: (a) when the incoordinating lesions advance faster than the coordinating tendency of the blindness grows. Here increase in other morbid signs (spread of sensory and visceral affections) will show the progress of the ataxia to be merely one expression of a general advance in the tabetic spinal lesions and will serve to distinguish it from (b) when blindness is accompanied by cerebral deterioration of such extent as precludes training, and prevents improvement. Mott's conclusion that 50 per cent. of early optic atrophies develop general paralysis is interesting as affording a possible explanation of many of the cases of this class. The law of the relation of loss of vision to ataxia, Maloney says, should read: *Ceteris paribus*, of two tabetics, at any stage of the disease, one blind, the other seeing, the blind has the greater tendency to persist coordinate, the lesser tendency to become ataxic. The degree of this compensatory improvement in the power of coordination will, *ceteris paribus*, tend to rise with the duration of the blindness, according to the training capacity of the person.

For two years Maloney has been applying to the cure of ataxia the method of enhancing sensory perception which the blind teach. He says that the blindfolded tabetics can quickly be taught to appreciate their surviving postural and muscular sense impressions to such a degree that hopeless bedridden ataxics quickly learn to walk again. Moreover, the degree of improvement obtained seems greater than that coming from Frenkel's exercises. Maloney promises in a subsequent paper to describe this new mode of treating ataxia.

Kansas Medical Society Journal, Kansas City

September, XIII, No. 9, pp. 345-384

44 Pathology of Chronic Arthritis. L. S. Milne, Kansas City.
45 Some Recent Medical Legislation—the Remedy—What? F. A. Carmichael, Goodland.
46 Theoretical vs. Practical Politics in Medical Legislation. J. J Sippy, Belle Plaia.
47 Medical Man in Legislature. J. S. Cummings, Bronson.

Kentucky Medical Journal, Bowling Green

September 15, XI, No. 19, pp. 779-812

48 Commercialism, Credulity and Criticism, Study of Some Conditions Tending to Produce Therapeutic Anarchy. V. E. Simpson, Louisville.
49 *Colostomy—Report of Cases. G. S. Hanes, Louisville.
50 Stricture of Urethra. J. T. Windell, Louisville.
51 Roentgen Ray as Aid in Diagnosis of Diseases of Internal Organs. D. Y. Keith, Louisville.
52 Bronchial Pneumonia. P. F. Barbour, Louisville.

49. **Colostomy.**—Hanes proposes a plan by which, he says, the simplest method of producing an artificial anus can be made one of the most reliable in regulating the escape of intestinal contents. The essential features of the ordinary Maydl operation are followed out. A glass, metal or hard rubber rod may be employed to support the spur of the intestine. At the appropriate time an opening is made in the intestinal wall which is to serve as an artificial anus. An incision is made directly over the rod and carried up the anterior wall of the intestine within half an inch of the skin at the upper angle of the abdominal wall. If the feces are liable to remain thin the opening should be at first small and later enlarged if necessity arises. Hanes' rule has been, without variation, for the rod to be removed in a few days succeeding the operation. It is in allowing this rod to remain permanently that simple dressings can be applied and the artificial opening surprisingly well controlled. In the first place the rod remains in the same relative position to the abdominal wall and the opening of the bowel. If there is retraction or distention of the abdomen the parts all maintain the same relative position.

The dressings for regulating the artificial opening consist in the application of a thin piece of gauze over the spur and rod, then a strip of gauze is thrown around the upper segment of the intestine, resting on the gauze, and the two ends of the strip are brought under the ends of the rod and tied. This arrangement makes a constriction around the upper and lower segments of the intestine, and on account of its position under the rod there is no way by which it can escape or relax from its position. The constriction remains constant whatever may be the position or condition of the abdominal wall. The amount of constriction can be regulated to meet the requirements of the individual case. A rubber band can be used, if preferred, instead of the gauze strip. There is no cumbersome and complicated apparatus to be removed when the time for evacuation arises. In addition to the light dressing just mentioned it is only necessary to apply a narrow elastic belt. The patient so far as the dressings are concerned is said to be no more uncomfortable than he would be in wearing an ordinary truss. He has done seven colostomy operations since January of this year and has employed the above method of dressings in six of these cases. It has now been more than seven months since the first operation was done. The patient declares that he has almost complete control over his bowel and experiences but little more discomfort than he did when his evacuations occurred in the normal way.

Missouri State Medical Association Journal, St. Louis

September, X, No. 3, pp. 81-120

53 Arterial Hypertension: Its Pathogenesis. S. P. Child, Kansas City.
54 Diagnosis and Postoperative Conduct of Acute Surgical Conditions. F. W. Bailey, St. Louis.
55 Some Problems Confronting Sanitarian. H. L. Reid, Charleston.
56 Accidents Due to Electric Currents and Their Treatment. W. R. Hewitt, St. Louis.
57 Physician, Patient and Surgeon. J. C. Boone, Charleston.
58 Stereoscopic Roentgenography. E. H. Skinner, Kansas City.

New Mexico Medical Journal, Las Cruces

September, X, No. 6, pp. 135-171

59 Systematic Examinations. F. J. Patchin, Albuquerque.
60 Reminiscences of Medical Men and Matters in Albuquerque. W. G. Hope, Albuquerque.
61 Acute Suppuration of Middle Ear. W. T. Salmon, Albuquerque.
62 Scorbutus. L. G. Rice, Albuquerque.

Northwest Medicine, Seattle, Wash.

September, V, No. 9, pp. 239-268

63 Principles Underlying Treatment of General Asthenic State. N. W. Jones, Portland, Ore.
64 Rational Treatment of Morphin Habituation. R. E. Bering, San Francisco.
65 Present-Day Classification of Nephritis and Therapeutic Applications (to be continued). F. Epplen, Spokane, Wash.
66 Obscure Mental Disorders a Menace to Public Safety. R. P. Smith, Seattle, Wash.
67 Relation of Specialist to General Practitioner. W. G. Cameron, Tacoma, Wash.
68 Primary Acute Mastoiditis. A. G. Greenstreet, Seattle, Wash.
69 Extra-Uterine Pregnancy. J. B. McNerthney, Tacoma, Wash.
70 Lipoma of Descending Colon Causing Intussusception. E. S. West, North Yakima, Wash.

Pennsylvania Medical Journal, Athens

September, XVI, No. 12, pp. 931-997

71 *Effects of Ingestion of Various Oils on Leukocytic Picture in Pulmonary Tuberculosis. M. Solis-Cohen and A. Strickler, Philadelphia.
72 Early Diagnosis and Treatment of Mental Diseases. F. X. Dercum, Philadelphia.
73 *Biologic Interpretation and Surgical Aspects in Painful Indigestion. G. W. Crile, Cleveland.
74 *Stomach from Standpoint of General Practitioner, Specialist and Surgeon. C. G. Stockton, Buffalo.

71. **Leukocytic Picture in Pulmonary Tuberculosis.**—Thirteen patients were given various oils by Solis-Cohen and Strickler, three were given cod-liver oil, two olive oil, three cotton-seed oil, three emulsion of petroleum and two an emulsion of beef fat, butter fat, olive oil, lard and peanut oil with proteins and carbohydrates. The one who examined the blood never saw the patients, did not know what they were taking, nor when they began or ended treatment. The blood was stained with eosin and hematoxylin. The two adult patients on olive oil improved. In both there was a slight decrease in the first two classes of Arneth, while the lymphocytes were also diminished, moderately in one and slightly in the other. Of the three adult patients taking cod-liver oil two improved.

In these the first two classes of Arneth were unchanged or very slightly augmented at first and then were markedly decreased, a slight increase following in one. In the unimproved patient there was a moderate decrease in the percentage of these cells. The lymphocytes were moderately diminished and then markedly increased in one; markedly increased, then moderately decreased and later similarly increased in another, and markedly diminished in the third.

Three children who took cotton-seed oil said they felt better while taking it. The first two classes of Arneth at first were moderately increased in one, moderately diminished in another, and very slightly diminished in the third; these were followed in all by a marked or very marked fall, which in the third was again followed by a moderate rise. The lymphocytes were markedly increased in all, although at first the increase was slight in one and preceded by a slight diminution in another. This was followed by a slight increase in one and by a moderate decrease in two, a very slight increase supervening in one of these. Two adults and a child were given petroleum emulsion, with some improvement of the symptoms in two and no change in one—an adult. In both adults the first two classes of Arneth were slightly augmented, while in the child there was a slight fall, followed by a very marked fall. The lymphocytes were slightly diminished in the unaffected adult, in whom the medicine produced nausea, moderately increased in the benefited adult and slightly diminished in the child when the medicine caused vomiting, followed by a very slight rise as the dose was reduced. Two children, who were given an emulsion of beef fat, butter fat, olive oil, lard and peanut oil with proteins and carbohydrates, said they felt better while taking the medicine. In both there was a marked and a very marked diminution in the first two classes of Arneth, preceded by a slight decrease in one and a slight increase in the other. The lymphocytes were moderately diminished in one despite an increase in the dose, and were slightly diminished at first in the other with the first small dose, but became markedly augmented as the dose was increased.

Of the thirteen patients given oils the first two classes of Arneth were diminished in eleven and increased in two; the lymphocytes were augmented in seven and decreased in six. There was a diminution in the percentage of lymphocytes and of polynuclear cells containing one and two nuclei in all the patients taking olive oil. There was an increase in the percentage of lymphocytes in all but one and a decrease in the first two classes of Arneth in all the patients taking cod-liver and cotton-seed oil. Of the three patients taking emulsion of petroleum the lymphocytes were increased in one and diminished in two, while the polynuclear cells with one and two nuclei were increased in two and diminished in one. In both the patients taking an emulsion of beef fat, butter fat, olive oil, lard and peanut oil with proteins and carbohydrates, the first two classes of Arneth were diminished, the percentage of lymphocytes being augmented in one and lessened in the other.

73 and 74.—Abstracted in THE JOURNAL, Nov. 16, 1912, p. 1818.

Public Health Journal, Toronto

September, IV, No. 9, pp. 491-538

75 Tuberculosis. M. Marshall.
76 Some Sins against Social and Sanitary Statutes. A. P. Reid, Halifax, N. S.
77 Public Health Legislation in Province of Quebec. J. A. Hutchinson, Westmount, Quebec.
78 Queries and Answers. J. Roberts, Hamilton, Ont.
79 Criticism of "Facts Against Vaccination." J. F. Palmer, London.
80 Necessity for Standardization and Universal Adoption of Medical School Inspection in United States. F. Allport, Chicago.

Tennessee State Medical Association Journal, Nashville

September, VI, No. 5, pp. 169-207

81 Treatment of Acute Intestinal Obstruction. W. A. Bryan, Nashville.
82 Chronic Intestinal Stasis. E. M. Sanders, Nashville.
83 Cecum Mobile, Chronic Appendicitis and Pericolic Membrane. J. M. Maury, Memphis.
84 Diagnosis and Treatment of Gastric and Duodenal Ulcer. W. A. Howard, Union City.
85 Some Surgical Diseases of Stomach—Plea for Their Early Recognition. E. E. Reisman, Chattanooga.

Wisconsin Medical Journal, Milwaukee

September, XII, No. 4, pp. 95-130

86 Treatment of Paresis in Light of Recent Discoveries. W. F. Lorenz, Mendota.
87 Pompeian Surgical Instruments. L. F. Frank, Milwaukee.
88 Use of Microscope by General Practitioner. D. Hopkinson, Milwaukee.
89 Therapeutic Uses of Thyroid Extract and Salvarsan. J. K. Chorlog, Madison.
90 Pituitary Extract and Ergot in Obstetrics. C. H. Davis, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 13, II, No. 2750, pp. 641-712

1 *Mind and Motive. D. Nicolson.
2 Malingering. J. Collie.
3 *Urinary Antiseptics. A. Jordan.
4 *Idem. J. W. T. Walker.
5 *Pharmacology of Body Temperature. H. G. Barbour.
6 *Use and Abuse of Hypnotics. W. H. Willcox.
7 Acid Child in Relation to Errors in Diet. A. Haig.
8 Errors in Dietetics. H. F. Winslow.
9 *Continuous Antiseptic Inhalation in Treatment of Pulmonary Tuberculosis. C. Muthu.
10 *Further Investigations of Action of Digitalis on Blood-Pressure in Man. F. W. Price.

1. See abstract from the *Lancet*.

3. **Urinary Antiseptics.**—This report is summarized as follows:

The acidity of the urine is readily increased to an extent more than double the normal by acid sodium phosphate, and to a considerably less extent by benzoates. With large doses of citrates it is easily rendered alkaline. Putrefaction of the urine and the growth of the staphylococcus is aided by alkalinity and delayed by acidity in proportion to the amount thereof. The reverse is the case with bacillus coli, but only to a small extent; its growth in both acid and alkaline urines quite luxuriant. Hexamethylenetetramin is not itself antiseptic, but acts by producing formaldehyd in the urine. This only takes place in acid urine and the drug is inert in alkaline urine. The degree of antiseptic power is proportionate to the acidity, and where this is normal or higher the drug is far the most efficient of all the urinary antiseptics. Sandalwood oil is a bad general antiseptic, but appears to have a specific action on the staphylococcus which may apply to cocci generally. It is of some use in alkaline urine. Benzoic and salicylic acids are very similar in action. Both are fairly efficient antiseptics in the urine, but are of very little use in alkaline urine. Boric acid is an efficient antiseptic. Its action is unaffected by alkalinity, so that it is the most efficient drug in alkaline urine we possess. Uva ursi is quite a good antiseptic. Its action is certainly not due chiefly to the arbutin it contains.

The whole of this work was done with a view to its clinical application, and the drugs were chosen and investigated with a view to obtaining increased knowledge of their therapeutic application.

The following, Jordan believes, are legitimate practical deductions:

The use of hexamethylenetetramin (together with acid sodium phosphate which should always be given with it) as a prophylactic before any operation or procedure where the urine may become infected, is of the utmost value, since if the urine is clean and highly acid, and sufficient hexamethylenetetramin is given in small doses to keep it continually present, the urine will not support the life of any organism, and becomes indeed a powerfully antiseptic fluid. Hexamethylenetetramin should only be given where the urine is or can be made acid, otherwise it is inert. It should never be given with potassium citrate in *bacillus coli* infections. If it is desired to try the effect of making the urine alkaline in these conditions use boric acod and uva ursi infusion. Where the urine is undergoing ammoniacal fermentation in the bladder, bladder washes or some operative procedure will always be the most important part of the treatment. The best drugs to use are boric acid in large doses, uva ursi, and possibly sandalwood oil. Sandalwood oil is always worth trying in a cystitis due to the staphylococcus alone. When acid sodium phosphate is prescribed it is as well to write chemical formula (NaH_2PO_4) on the prescription and to ascertain that the right phosphate has been dispensed. It is worth while in giving this drug to estimate the acidity of the urine occasionally (after the simple manner described) to make sure that there is an increase; unless the acidity is kept above 4 or 5 hexamethylenetetramin will not act efficiently, and a high acidity is of much more value than a large dose of hexamethylenetetramin.

4. **Idem.**—Walker concludes that the most effective treatment in acute pure bacillus coli infection is, first, to neutralize the poison with alkalis, and when the symptoms have subsided to turn the urine acid and give urinary antiseptics in progressive doses. In subacute and chronic cases of infection the drugs used should be dictated by the reaction of the urine.

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If the urine is acid hexamethylenamin should be given alone; if it is alkaline or neutral it should be combined with sodium acid phosphate or ammonium benzoate. In persistent infection the dosage of hexamethylenamin should be raised until symptoms of formaldehyd irritation commence to appear. The Rimini-Burnam test should be used in every patient treated by hexamethylenamin or other formaldehyd-producing drug. Without it the physician is completely in the dark as to whether formaldehyd is being liberated or not.

5. **Pharmacology of Body Temperature.**—Barbour's first group of experiments show that the health-regulating centers are directly susceptible to cold and heat, as well as to specific neuropharmacologic action. Analogous to the high temperatures which can be produced by the "heat puncture" experiment they have demonstrated a stimulation of the temperature centers with cold, caffein, and betatetrahydronaphtylamin. Depression, giving an antipyretic effect, has been obtained with chloral, antipyrin, quinin and epinephrin. The second series of investigations showed that animals deprived of one cerebrum and corpus striatum (often), or of both cerebra corporo striata and optic thalmi (always), run a subnormal temperature for the days which they survive the operation. In such animals, when given average doses of antipyrin, the phenomena of increased heat dissipation do not occur, and those of heat production are exaggerated. The total effect is a paradoxic rise in body temperature.

6. **Use and Abuse of Hypnotics.**—It is emphasized by Willcox that in every case of supposed "insomnia," it will be well first to make quite sure that absence of sleep really exists. Not infrequently a patient imagines that he has had a sleepless night, whereas he may have slept for several hours. When insomnia really exists it must be remembered that this condition is only a symptom, and its cause in every case must be very thoroughly and carefully investigated. The immediate resource to hypnotic drugs is greatly to be deprecated, since frequently harmful results follow this procedure. Not only is there danger of the development of a drug habit, but commonly the patient develops a sad lack of self-reliance, and is apt to think that he cannot exist without these artificial aids to sleep. It must also be remembered that "sleep induced by drugs" is not the same as natural sleep, and has not the same beneficial value. In every case of insomnia, after having carefully determined the etiologic factors, the first therapeutic measures should be directed toward the treatment and removal of the cause. Any pathologic condition present should be treated by those special therapeutic measures most suitable for the particular case. In addition, general measures for promoting sleep should be considered carefully and recommended, such as a modification of the mode of life and habits of the patient as regards work, rest, diet, exercise, smoking, etc. The conditions of the bedroom and bed itself as regards comfort, quiet, proper ventilation, warmth, etc., should be made suitable. The taking of a hot drink before bedtime may be found to suffice. Simple measures of hydrotherapy, such as baths, douches and in severe cases warm or cold packs, may be employed before hypnotic drugs are given. In some cases massage or electrical treatment have been found helpful. Willcox points out that in many cases of insomnia the employment of such measures as those just described fails to remove this distressing symptom, and in such cases in which the sleeplessness is likely of itself to exercise a harmful effect on the patient's health, it will be advisable to employ some suitable hypnotic drug.

9. **Antiseptic Inhalation in Pulmonary Tuberculosis.**—Many years' close observation leaves no doubt in Muthu's mind that by continuous inhalation volatile antiseptics in the form of vapor mixed with air enter the alveoli as well as the bronchial passages, and get slowly absorbed into the circulation in the lungs and reach the tuberculous focus. Ever since 1895 he has been treating pulmonary tuberculosis with antiseptic inhalations; and since 1899 he has used them in combination with sanatorium treatment. He uses two methods in the sanatorium: the lamp method—where formaldehyd is vaporized in a methylated spirit-lamp, containing a hot-water boiler, the inhalation being taken in patients' own rooms with wholly or partially closed doors and windows for half an hour at a time; the continuous method. The mode of procedure is as follows: When a patient first comes to the sanatorium he is sent to bed and kept there if he shows any signs of a rise of temperature. He has the inhaler for two hours the first day, four hours the second, six hours the third, and eight hours the fourth and the following days. In this way he is gradually prepared to use the inhaler a great part of the day as well as the night. Patients keep on the inhaler while they are walking, resting, reading or playing games, etc. In fact, they are encouraged to keep on the mask at every opportunity from the time they wake up in the morning till late at night, and even during the night. And as they improve and show signs of arrest of the disease the hours are gradually reduced to six, four and two hours a day.

The various solutions used are as follows:

A.—Formaldehyd, 2½ per cent.; chloroform, ʒj; menthol, gr.x; ol. pini pumilin., ♏x; spt. vin. rect. ad ʒj.

B.—Formaldehyd, 5 per cent.; guaiacol, ʒj; chloroform, ʒij; menthol, gr.xv; ol. pini pumilin., ♏xv; spt. vin. rect. ad ʒj.

C.—Guaiacol, ʒij; terebene, ʒj; menthol, gr.xv; ol. pini pumilin., ♏xv; chloroform, ʒij; spt. vin. rect. ad ʒj.

D.—Guaiacol, ʒij; iodin, ʒj; terebene, ʒj; ol. pini pumilin., ♏xv; chloroform, ʒij; spt. vin. rect. ad ʒj.

N.B.—About 10 drops to be sprinkled on the inhaler about every half to one hour.

10. **Action of Digitalis on Blood-Pressure in Man.**—In all thirty-seven cases have been observed by Price. Of these, twenty-six were cases exhibiting some cardiovascular affection, including arteriosclerosis, myocardial degeneration and valvular disease (mitral and aortic), the systolic blood-pressure in some of these being subnormal, in others normal, and in others supernormal; eleven were cases in which on examination of the radial artery and heart nothing abnormal was found. In only one case was there a rise in blood-pressure, in several there was a fall, and in the remaining cases there was no observable change. In a considerable percentage of cases considerable fluctuations in the systolic blood-pressure occurred from day to day. In one case the variations amounted to 26 mm. of mercury. All the patients were first of all given a course of rest before any drug was administered. This plan prevented any drug being credited with results which were in reality due to adventitious circumstances. The sphygmomanometer used was Martin's modification of the Riva-Rocci. Only the systolic pressure was taken, for, in their opinion, it is not certain that as yet they have a method of accurately determining the diastolic pressure. The measurements were taken either every day or nearly every day. In regard to dosage, as a rule Price gave a dram, but sometimes 45 minims, of the tincture of digitalis per day. The cases cited in the present paper were 7 cases of mitral disease, 1 case of mitral disease with also a systolic murmur over the sternum, 1 case of cardiosclerosis, 4 cases of double aortic and mitral systolic brut, and 2 cases of double mitral and double aortic disease. In all excepting 5 cases there was no observable change in the blood-pressure during the administration of the drug. Of these 5 cases, in 3 there was a fall equal to about 20 mm. of mercury toward the end of the period of administration (in 1 of these cases the fall remained after the drug was stopped); in 1 there was probably a fall; and in 1 there was a rise equal to about 20 mm.—namely, in a case of double aortic disease with also a mitral systolic murmur, arterial wall thick and somewhat tortuous, cyanosis, orthopnea, slight jaundice, much edema, and slight albuminuria, and with a blood-pressure varying between 170 and 180 mm. In some cases observations were taken over prolonged periods, even up to five months.

Dublin Journal of Medical Science

September, III, No. 501, pp. 161-240

11 Medical Inspection of School Children. W. J. Thompson.
12 Pathologic Report of Rotunda Hospital for One Year, Nov. 1, 1911, to Oct. 31, 1912. R. J. Rowlette.
13 Some Sequelae of Labor. B. A. H. Solomons.
14 Epidemic Poliomyelitis, or "Infective Paralysis." J. A. W. Ponton.

Journal of Tropical Medicine and Hygiene, London

September 1, XVI, No. 17, pp. 257-272

15 Meteorology of Malaria. M. D. O'Connell.
16 Case of Acute Agchylostomiasis Treated by Autogenous Vaccine of a Coliform Organism. R. G. Archibald.

Lancet, London

September 13, II, No. 4698, pp. 783-850

17 Continuity. O. Lodge.
18 *Mind and Motive: Criminal Lunacy. D. Nicolson.
19 Treatment of Brain Tumor. C. A. Ballance.
20 *Rupture of Spleen; Splenectomy; Recovery. R. Scheult.
21 Anesthesia in Acute Inflammations of Mouth and Pharynx. T. B. Layton.
22 *Avoidance of Sudden Death from Induction of Artificial Pneumothorax. C. Lillingston.
23 *Degeneration of Nucleus Lentiformis, Associated with Cirrhosis of Liver. A. T. Henrici.

18. **Mind and Motive.**—In this lengthy paper Nicolson discusses insanity and crime, criminal lunacy, medical jurisprudence of insanity, knowledge of right and wrong, preexisting mental enfeeblement; its degree and character, the question of infidelity, alcoholic excess—(1) delirium tremens, (2) drunkenness to oblivion, and (3) simple drunkenness, epilepsy, delusions, malingering, imposture, feigned insanity, etc. He denies emphatically the heredity of crime while making full allowance for the effects of environment and education, and while laying stress on the hereditary transmission of insanity as a mental condition or neurosis. Nicolson asks that no lunatic shall be hanged, and that no mere criminal shall, on the plea of insanity, be allowed to escape the due punishment for his act of murder. The tests applicable and the difficulties which the medical practitioner will have to surmount if he is to influence rightly the course of justice, discharging a responsibility the weight of which none called on to undertake it can fail to realize, are also considered by Nicolson. He says that what may be treated as knowledge of right and wrong by laymen administering the law may have existed side by side with insanity in a man who is a lunatic, medically recognizable as such and who ought not to be hanged. He holds that no medical man is fully equipped for the practice of his profession unless he has had some months' experience—the more the better—as a medical officer in an asylum. To lack of such experience he ascribes the existence of preventable criminal lunacy, finding this flaw in our social defenses to be due in a large number of cases to be the neglect of symptoms which should indicate the desirability of certification and treatment in an asylum.

20. **Rupture of Spleen.**—Looking up the literature on this subject Scheult found it stated that removal of the spleen was practiced for the first time by Zuccarelli (Saccharelli) in 1554; the operation fell at once into disfavor, for there is no record of its repetition until more than three centuries later, when M. Pean, of Paris, successfully extirpated a cystic spleen in 1867. Since that time the operation has been performed for various conditions and has become a well-established surgical procedure. Up to a few years ago, however, the mortality rate was high; in 1887 it seemed to have been as high as 73 per cent.; Cecil in 1894 estimated it at 51.6 per cent. Since that date there have been decided improvements in the results, due largely, Scheult thinks, to the abandonment of the operation for splenic leukemia and other unfavorable conditions which proved almost invariably fatal. In 1906, B. B. Davis was able to place the mortality at 18 per cent. As regards the removal of the spleen for rupture Reigner recorded in 1893 the first successful case. In 1902 Berger had collected from the literature sixty-nine cases of this nature, with twenty-nine deaths—a mortality of 42 per cent. In 1906 Horz had obtained the reports of thirty-five additional cases with a mortality of 29 per cent. Splenectomy consecutive to wounds of the organ has therefore been attended with a fair measure of success; in any case Scheult says, it is, beyond doubt, the most rational and hopeful treatment, especially when it is borne in mind that the mortality in the unoperated cases has been computed to be more than twice that of the cases in which splenectomy has been performed.

22. **Avoidance of Sudden Death from Induction of Artificial Pneumothorax.**—Most cases of sudden death from the induction of a pneumothorax in Lillingston's opinion are due to errors of technic and he claims that with care these accidents should be extremely rare, and they should not prevent the adoption of the treatment in suitable cases. The most serious accidents are pleural reflex, including laryngeal spasm, gas embolism, aspiration pneumonia, and an uncontrollable accidental pneumothorax due to puncture or rupture of the visceral pleura. Forlanini in 1912 had performed 10,000 operations on 134 patients, of whom 2 died from gas embolism, and 12 exhibited serious symptoms which were very alarming in 5 cases but never fatal. Saugman in 1913, with an experience of about 5,000 operations on 186 patients, had seen two fatal cases at the first injection. Vere Pearson, with an experience of sixteen patients, has seen no fatal accident; and Lillingston with an experience of thirty-two patients and several hundred punctures of the chest, has met with no more alarming symptom than slight shock of a few minutes' duration in one case. The following "don'ts" are mentioned:

1. Don't inject gas without satisfactory manometric oscillations, or at a pressure exceeding the atmospheric pressure when beginning a first injection. 2. Don't spare anesthetics. 3. Don't create a high intrapleural pressure. A pressure of 40 cm. of water may cause no discomfort during an injection, but it may be more than doubled by a subsequent fit of coughing, and a leak may thus be sprung in the pneumothorax. 4. Don't induce a pneumothorax during menstruation when reflex excitability may be raised. 5. Don't puncture on the first occasion in many different places in a search for free pleura; patients have collapsed after the sixth or seventh puncture who have tolerated the first punctures well. It is better to continue the search for free pleura in a day or two. 6. Don't inject gas rapidly or at a low temperature. Brauer has once seen symptoms of pleural reflex after the use of cold gas. 7. Don't use large needles or needles with rough surfaces; and don't let the rubber tubing drag on the needle during an injection. 8. Don't inject till the patient's posture is easy and comfortable. 9. Don't hesitate to withdraw the needle at the earliest sign of collapse. 10. Don't operate without brandy and a hypodermic syringe full of ether handy.

23. **Degeneration of Nucleus Lentiformis.**—The association of cirrhosis of the liver, with degeneration of the nucleus lentiformis in this disease, Henrici says, is so constant as to leave no doubt that there is an important relationship between them. Concerning this relationship two hypotheses present themselves: first, that the same substance which produces the liver changes also affects the lenticular nucleus; and, second, that there is elaborated in the diseased liver some toxic body which has a peculiar affinity for the tissues of the corpus striatum. In a case cited by Henrici there was a marked history of alcoholism, and the liver definitely showed an early stage of Laennec's cirrhosis.

Annales de l'Institut Pasteur, Paris

August, XXVII, No. 8, pp. 597-700

24 *Vaccination against Typhoid. III. E. Metchnikoff and A. Besredka. (Deux ans de vaccination antityphique avec du virus sensibilisé vivant.) A. Besredka. (Vaccinothérapie de la fièvre typhoide par le virus sensibilisé de Besredka.) A. Delteil, L. Nègre and M. Raynaud.
25 *Persian Miana Bug (a Tick) as Host of Spirochetes. (Argas et spirochètes.) E. Marchoux and L. Couvy.
26 Plant Physiology. II. (Recherches de physiologie végétale.) P. Mazé.
27 *Lesions of Organs of Internal Secretion from Toxic Action of Helminths. (Lésions des organes à sécrétion interne dans l'intoxication vermineuse.) S. P. Bedson.

24. **Vaccination against Typhoid.**—Metchnikoff reports that three chimpanzees treated with Besredka's sensitized living virus bore without harm a dose of typhoid virus which speedily induced typhoid fever in the control chimpanzee. The virus injected under the skin seems to be destroyed there; none of it passes into the blood, urine or stools. One of the soldiers injected with this sensitized virus in the army in Africa contracted typhoid afterward and died, and Metchnikoff believes that the dose must have been too small. Chimpanzees require a larger dose than was used in early trials of the virus. Besredka has injected his virus in 800 persons in various institutions, and there has been no typhoid among them although several cases have developed during the two years among the non-vaccinated. There do not seem to be any contra-indications to its use, he says, adding that by subcutaneous or intramuscular injection it is harmless for man even in large doses. The third article reports favorable

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results with the virus given in forty-eight cases of pronounced typhoid.

25. **Ticks and Spirochetes.**—The spirochetes invade all the organs of these insects and even their eggs. One egg of the *Argus persicus* contained more than thirty spirochetes.

27. **Lesions from Helminth Toxins.**—Bedson found that of all the glands with an intestinal secretion, the adrenals seem to suffer most from the toxic action of helminths, whether the intoxication is acute or chronic. The thyroid may also show lesions but seldom except in subacute and chronic intoxication from this cause. The other ductless glands show but slight lesions. His research was done on guinea-pigs, injected with extracts of various tape-worms or with juice from a horse ascaris. The character of the lesions seemed absolutely the same whatever the helminth, and the reaction seemed of the same nature as that to microbian toxins or most chemical poisons.

Journal de Médecine de Bordeaux

August 31, LXXXIV, No. 35, pp. 559-572

28 Identical Malformations in Pair of Syphilitic Twins. Lefour and Balard.

Presse Médicale, Paris

September 3, XXI, No. 72, pp. 721-728

29 Non-Malignant Tumor of the Cecum. (Fibrome pur du caecum.) J. L. Faure and B. Desplas.

Revue de Gynécologie, Paris

July, XXI, No. 1, pp. 1-96

30 *Early Abortion. (De l'avortement précoce.) V. Wallich.
31 *Conservative Operative Treatment of Tuberculous Processes in Ovaries or Tubes. Patel and Olivier.
32 Pseudomyxoma of the Peritoneum of Appendicitic Origin. A. Delectrez.

30. **Early Abortion.**—Wallich emphasizes that too little attention has been paid heretofore to the cases of early abortion, and yet this may be the starting point of infectious processes in the uterus, ovaries, tubes or peritoneum, or from the relics of the placenta a neoplasm may develop—all of which may be prevented by appropriate treatment in time. The energy of the decidual reaction seems to be more intense when the embryo has lost its vitality, the mucosa apparently striving to throw up a barrier against the cellular elements of the chorion. The result may be a hydatidiform mole, and in prophylaxis of this and other trouble from this source we should be on the alert for the symptoms of early abortion, and not temporize too long in treatment of consecutive uterine hemorrhages which may be the only manifestation at first of the uterine neoplasm. Early abortion is most liable to occur at the first onset of the premenstrual congestion. It is this first congestion after conception which prepares for the embedding of the ovum. The slight disturbances following conception, which can generally be retrospectively traced, cease or become attenuated at this time of the premenstrual congestion. The congestion is aggravated by sexual excitement, by auto-intoxication or other causes favoring congestion in the pelvis. For this reason women inclined to abortion should refrain from everything liable to induce this congestion during the six days of the premenstrual period, keeping very quiet in body and mind, the bowels kept open with mild laxatives or enemas, the diet very simple, possibly refraining from meat and alcohol.

Wallich insists on the necessity for impressing on women that every discharge of blood should be carefully inspected during the entire genital period, and all clots and débris of any kind should be saved for examination. If this is done systematically, as a matter of course, inspection of the membranes expelled will show the state of the abortion. Histologic examination will throw still further light on the case. Treatment should begin at once when the chorionic "infection" starts, and this probably occurs as soon as the ovum dies. It should be removed without delay. Wallich gives an illustrated description of a number of cases which illustrate the importance of these views, showing the remarkable proliferation of tissue as the reaction to the presence of the dead ovum. The specimens dated from the thirtieth to the forty-third day after the last menstruation.

31. **Operative Treatment of Tuberculous Processes in Ovaries or Tubes.**—Patel and Olivier have been reexamining recently 121 patients who have been operated on since 1900 for tuberculosis of the ovaries or tubes. They give the details and outcome in thirty-three cases in which the operation was truly conservative, leaving the uterus or one ovary or tube. The operation was by the vaginal route in sixteen cases and twelve of these patients had to be operated on again, and by a laparotomy, before the lesions actually healed. Of the four others one died and the other required several operations; five in one instance, but the woman was finally cured and has been in good health for seven and a half years.

It is foolish, they declare, to save the uterus after the adnexa has been removed; it is not only useless but is liable to develop myomas and cancer. They query whether it is wise to attempt to retain the adnexa when once a tuberculous process has become installed at any point in them. Examination of eighty women as to the effects of castration under these circumstances showed that there had been scarcely any symptoms attributable to the artificial menopause. The tuberculous process had evidently been preparing them for the castration so that the loss of the ovaries did not affect them as under other conditions. A second operation was never required in the abdominal cases. When the adnexa were left, they are generally tender and the women suffer a little but never enough to demand their removal. On the whole, there is seldom need for restricting the operation to conservative measures in case of tuberculosis of the adnexa. The degree of virulence of the infection, the extent of the lesions and the financial condition should all be taken into account. The necessity for earning her livelihood may turn the scale in favor of suppression of a function which is not vitally necessary.

Semaine Médicale, Paris

September 16, XXXIII, No. 37, pp. 433-444

33 *Calcium Reaction in Diagnosis. (La calcirèaction et sa signification diagnostique.) G. Rodillon.

33. **Calcium Content of the Urine in Diagnosis.**—Rodillon expatiates on the importance of abnormal losses of calcium as preparing the soil for development of tuberculosis. The French have long emphasized the pathologic importance of the "demineralization of pretuberculosis," and Rodillon has worked out a simple method for detecting it. The calcium is eliminated mainly by the intestines and kidneys: on a vegetable diet by the intestines, and on a meat diet by the kidneys. Consequently the patient must be on a meat diet for two or three days before the test. All that is needed for it is (1) a graduated cylindrical glass tube, 10 cm. high and 15 mm. wide, with a flat bottom; (2) a white plate or card with a heavy black line across the center, 2 or 3 mm. wide; (3) the reagent which is a mixture of neutral ammonium oxalate, 3 gm.; acetic acid crystals, 5 gm.; distilled water, 40 gm. The cylindrical tube is filled to the 5 c.c. mark with the reagent and then with an aqueous solution of some calcium salt, corresponding to 0.2 gm. of lime (CaO) to the liter, up to the 10 c.c. mark. The contents are mixed and then the tube is set on the black line on the card and the fluid is taken up and discarded with a dropper until the black line becomes perceptible below, looking down into the tube. The figure of the graduated scale to which the contents of the tube then reach is thus the standard for comparison. It is usually at the 2.4 c.c. mark. The test is then repeated with the urine to be examined: 5 c.c. of urine is added to the 5 c.c. of the reagent in the tube, and the height of the fluid when the black mark becomes perceptible is the "calcimetric index." The base of the equation is the 0.2 gm. of calcium per liter. This is multiplied by the standard index first obtained, divided by the patient's index. For example, x equals 0.2 multiplied by 2.4 and divided by 3.2 c.c. The index thus derived is 0.15; this represents the proportion of calcium in the liter of the urine tested. In health, on a meat diet, the index ranges from 0 to 0.6 gm.; demineralization is certain when there is over 0.9 gm. On a mixed diet, the normal range stops at 0.5 gm., and on a vegetable diet at 0.2 gm.

Archiv für Gynaekologie, Berlin

C, No. 2, pp. 233-454. Last indexed September 27, p. 1078

34 *Structure of the Uterine Mucosa in Health and Disease. (Die Klinik der Endometritis mit bes. Berücksichtigung der unregelmässigen Gebärmutterblutungen.) T. Hitschmann and L. Adler.

35 *Value of Gonococcus Vaccine in Gynecology from Differential and Therapeutic Standpoints. H. Hauser.

36 Uterine Myomas and Myosarcomas. H. Raab.

37 Chorio-Epithelioma. (Ueber maligne Entartung der Epithelien primär verschleppter Chorionzotten.) T. Nagy.

38 The Finer Network Structure in the Nerves and Placentar Epithelium. (Golgis Apparate reticolare interne in den Plazentarepithelien.) E. A. Bjorkenheim.

34. **Endometritis and Irregular Uterine Hemorrhage.**—Hitschmann and Adler here answer the objections that have been made to their statements five years ago in regard to the structure of the uterine mucosa in normal and inflamed conditions. They review fifty articles that have been published on the subject and declare emphatically that irregular bleeding and pains do not belong to the clinical picture of chronic endometritis. The only sign of chronic endometritis is a suppurative discharge, the fluor. This corresponds to the anatomic findings. Acute or chronic interstitial endometritis is characterized by a round-cell discharge easy to distinguish from the physiologic secretions and from desquamating catarrh of the vagina.

The inflammation with chronic endometritis burrows deep into the tissues and patches burrow here and there absolutely inaccessible to the curet, while they are constantly liable to infect the mucosa anew. It is hard to see how curetting is going to cure such a process. The older the process the less the exudation. Curetting is more liable to aggravate it, as it inevitably and naturally fails to remove all the diseased tissue. Caustic applications also act only on the surface and do not reach the deeper diseased tissues. It seems evident that, to date, radical effectual treatment of a suppurative discharge from the uterus is still an unsolved problem. This does not apply of course to the endometritis which follows abortion or delivery; curetting or formaldehyd here prove their usefulness.

35. **Gonococcus Vaccine in Diagnosis and Treatment.**—Hauser calls attention to the general or focal reaction to the vaccine as very important for the differential diagnosis of gynecologic affections. He found the reaction always positive in the recent gonorrhea cases, with gonococci, and constantly negative when gonorrhea could be positively excluded. In the dubious cases the general or focal reaction often proved a great help, although it is not invariably specific in the vaguer cases. A positive focal reaction is the chief criterion. The history of vaccine diagnosis and therapy of gonorrhea is reviewed in detail and the works of others in this line. He applied the vaccine in differentiation in ninety-five cases. Outside of the typical groups the test failed in four cases and the findings were dubious in five, so that only in 9.5 per cent. of the total was the reaction misleading or unsatisfactory. He warns that a negative reaction does not exclude gonorrhea as the reaction may be hindered by mixed infection or the dose may have been too small or the lesion may be too old to react. His experience with vaccine therapy was quite favorable, but he warns that it is far from being absolutely harmless and should be applied only under constant medical control; never to out-patients. The results were excellent in 29.4 per cent. and satisfactory in 52.9 per cent; thus 82.3 per cent. of his seventeen patients with gonorrheal lesions in ovary or tube were materially benefited.

Archiv für klinische Chirurgie, Berlin

CII, No. 1, pp. 1-307. Last indexed August 30, p. 715

39 Experimental Pathology of the Pericardium. L. Rehn.

40 *Transplantation of Tendons. (Klinischer Beitrag zur freien Sehnenverpflanzung.) E. Rehn.

41 *End-Results of Transplanted Bones and Joints. (Einige Dauerresultate der Transplantation.) H. Küttner and L. Jianu.

42 *Connection between Acute Pancreatitis and Gall-Bladder Disease. (Experimente und klinische Betrachtungen über die Zusammenhänge zwischen acuter Pankreatitis und Erkrankungen der Gallenblase.) O. Nordmann.

43 Experimental Transplantation of Mucosa from Bladder, Stomach, etc. (Die freie Schleimhautüberpflanzung—Abdominalschleimhaut—im Experiment.) G. Axhausen.

44 *Traumatic Abscess in the Brain. (Ueber den traumatischen Gehirnabscess, seine Complication durch Extraduralabscess und eine Methode des plastischen Verschlusses operativer Schädeldefecte.) F. Kempf.

45 Collargol. W. Kausch.

46 *Treatment of Joint Tuberculosis with Fistula. (Operation und offene Behandlungsmethode der eitrigen fistulösen Gelenktuberkulose.) W. v. Wrzesniowski.

47 Importance for Surgical Work of Knowing the Coagulating Time. (Welchen praktischen Werth haben Blutgerinnungsbestimmungen für die Chirurgie.) Schlossmann.

48 Tumor in Testicle Following Herniotomy. (Fall von entzündlicher schnell wachsender Hodengeschwulst nach Bruchoperation.) G. Lerda.

49 Infection in Wounds on Battle Field. (Die Infection im Kriege—mit Ausschluss der specifischen Infectionen und der allgemeinen Infection.) W. v. Oettingen.

50 Serodiagnosis of Carcinoma. G. Wolfsohn.

51 Tumors of Carotid Gland. (Geschwülste der Carotisdrüse.) C. E. Neuber.

52 Giant Growth of One Hand. (Fall von angeborenem partiellen Riesenwuchs.) H. Hinterstoisser.

53 Absorbable Flat Rings to Aid in Suturing Vessels. (Zur Technik der Gefässchirurgie.) E. Jeger and E. Unger.

40. **Tendon Transplantation.**—Rehn gives an illustrated description of several among the ten cases in the last year in which he had implanted a strip of tendon from some neighboring region after a trauma cutting the tendons in the hand; in one case the operation was on the foot. Two of the patients were children of 8 and 11, the others were mostly young adults. The operation on the foot was done for paralytic club-foot from infantile paralysis at six months. The results were most excellent when the extensor tendons were involved in the paralysis; conditions here are particularly adapted for restitution of function. The task is much more difficult when the flexor tendons of the hands are involved. A minor point which it may prove useful to remember is that wearing a ring may help to substitute the defective transverse ligament. The communication issues from the clinic at Jena in charge of Lexer who has been a pioneer in transplantation of both soft parts and bones.

41. **End-Results of Transplantation of Bones and Joints.**—Küttner reports experiments in this line with bones from cadavers and monkeys, with the post-mortem findings. He remarks that it is amazing to see how Nature uses the implanted bone and how she seems to be grateful for the aid thus afforded. The true bone substance dies, but this aseptic necrosis of the engrafted bone seems to be of no importance from the surgical standpoint, as the muscles grow to it and fine function results, the graft thus proving a prothesis more perfect than can be provided in any other way. The implanted bone tissue is gradually absorbed in the course of years but new construction goes hand-in-hand with the absorption, so that Küttner does not hesitate to say that the end-result is the same as if the implant had not died but had been kept living from the start. One of the cases was that of an implanted hip-joint and he describes the histologic findings on sections of the head of the femur and of the bone above the point of implantation at this point. The second case was also that of a chondrosarcoma of the upper third of the femur and the implanted bone and joint were taken from a cadaver three hours after death.

In the first case the graft of the entire upper part of the femur had been taken from a cadaver thirty-five hours after death. The patient died thirteen months later from metastases in the spine. He gives colored plates of the findings on lengthwise section of the femur. The implant shows solid callus at the point of junction, and there is not a trace of absorption anywhere. The gluteal muscles not only grew to the graft but grew to it at the normal points and a perfect joint capsule developed in time. The illustration shows the almost unbelievable normal attachments of the muscles in the region of the greater trochanter, which had had to be nearly all resected when implanted as it pressed too hard on the soft parts. In the second case the joint was taken from a cadaver three hours after death. The bone fractured later at the point of junction in consequence of an operation for recurrence of the chondrosarcoma, but firm consolidation soon followed. Several other operations for repeated recurrence became necessary until finally two years and three months after the implantation, exarticulation at the hip-joint

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was required. The results here were similar to those of the first case, substitution for the actual bone substance.

He also illustrates the findings in a child with a congenital defect of the fibula which he corrected by implantation of the fibula from a Java monkey. The Roentgen ray pictures twenty months later show the most gratifying results and justify the extensive application of this method of utilizing bones and joints from monkeys. He has performed several operations of the kind. The bone is taken from the monkey under general anesthesia; the animal is then killed at once and examined with minute care. If necropsy shows that the animal is entirely healthy, the bone, still warm, is then transferred to the patient.

Jianu reports a number of interesting cases, among them what he thinks is the first successful reimplanting of the left forearm and hand which had been torn off in a machine accident. The muscles had been severed in the lower third of the forearm as also both the radial and ulnar arteries and both bones were fractured. The hand was connected only by a thin bridge of skin, 3 cm. wide, at the back of the arm, consisting of merely cellular tissue and one subcutaneous vein. Half an hour after the accident the muscles were sutured, the median and ulnar nerves were joined, and the stumps of the radial artery were invaginated. The ulnar artery was too much injured to attempt its restoration. No attempt at anastomosis of the veins was made as the supply was considered sufficient. The hand was preserved, and now, three years afterward, the sensory, motor and vasomotor disturbances seem to be retrogressing. In some other autoimplants of fingers or foot and in some experimental research the outcome was not successful and the replanted part had to be removed. An implanted testicle from another patient was absorbed after a few months and no effect could be detected from its presence. The implantation of the ovaries from a rabbit in a woman suffering from the artificial menopause was followed by the subsidence of all the disturbances due to loss of ovarian functioning after castration. Although the implanted ovaries were absorbed by the end of three months, yet they seemed to supply the needed stimulus for the harmonious working of the ductless glands.

In another group of cases Jianu transplanted the hypogastric artery in a pedunculated graft to restore a segment of the ureter in a woman after hysterectomy for cancer. The segment of the artery was of course deprived of all connection with the arterial circulation but it was left unmolested in respect to its relations with adjacent tissues; the upper end of the ureter was pushed into the upper end of the artery and the lower end of the artery into the lower stump of the ureter. In another case a segment of the facial was implanted to take the place of Steno's duct and it acts ideally. In another, a segment of the epigastric artery was used to restore the vas deferens in a young man whose left testicle had been excised three years before for tuberculosis. This principle of pedunculated grafts was also successfully applied to restore a segment in the femoral vein, utilizing for the purpose a flap taken from the hernial sac. In conclusion he reports transplantation from one animal to another joined together like the Siamese twins.

42. **Connection between Acute Pancreatitis and Disease of the Gall-Bladder.**—Nordmann was able to induce acute pancreatitis in dogs without fail by closing the outlet to the pancreas and inoculating the gall-bladder with bacteria. A gall-stone at the mouth of the common bile duct is liable to cause the secretion to back up into the pancreatic duct, and acute pancreatitis is almost inevitable when infected bile thus reaches the pancreas. The pancreas tissue suffers from the infection which opens the door to secondary autodigestion of the tissue from the pancreatic juice with resulting fat-tissue necrosis. His experience in eight operative cases of acute pancreatitis confirms in every respect the deductions drawn from fourteen dogs on which he operated. His patients were between 33 and 67 years old, and six had had repeated gall-stone colics. His clinical experience further shows that the prognosis is almost invariably bad when the pancreatitis develops suddenly, with signs of very severe shock and collapse. An operation then may prove the last straw, while otherwise there is always the hope that the severest symptoms of peritonitis with acute pancreatitis may become arrested and encapsulated abscesses develop, the opening of which makes much less demands on the patient than a laparotomy. This occurred in two of his cases. In one the acute pancreatitis followed gall-stone colic, and very painful peritonitis, mainly in the epigastrium, accompanied the severe collapse. The symptoms gradually improved and a subphrenic abscess developed on the left side, which healed after it had been evacuated and the woman recovered, although there were evidences of necrosis in the subcutaneous fat.

In a second case the same sequence of events occurred; the diffuse peritonitic symptoms gradually subsided and an abscess developed in the left lumbar region. Nordmann applied various technics in his cases, finally becoming converted to the advantages of a median incision plus possibly an oblique incision toward the right costal arch. He also emphasizes the importance of draining the common bile duct. Large amounts of pancreatic juice were found in the discharge from the drain, confirming the close communication between the ducts. The sooner operative treatment is applied in pancreatitis the better. It should consist in an ample incision, opening the lesser sac of the omentum, decapsulating the pancreas, tamponing the exposed gland and draining the lesser sac. At the same time the gall-bladder should be opened. This should never be omitted, even when there is no suspicion of gall-stones. With a stone in the common bile duct, if the general condition permits, the duct should be opened and drained. Abscesses and foci of softening in the pancreas should be opened with a blunt instrument and drained.

44. **Traumatic Abscess in the Brain.**—Kempf reports a case in which he ascribes the fine outcome to a second operation in which he closed the gap in the skull with a bone plate taken from the boy's tibia. He gives an illustrated description of the technic.

46. **Operative Treatment of Joint Tuberculosis with Fistulas.** Wrzesniowski reviews his experience in forty-six cases of this kind in which he succeeded in curing 75 per cent. of the patients. The cure has been permanent to date in 55 per cent. of the total, although the cases were all severe processes in shoulder, elbow, knee or ankle with numerous fistulas and profuse suppuration. A wide transverse incision over the articulating line and a lengthwise incision permit the joint to be opened like a book. All the diseased tissues can thus be resected, with ample access. Tuberculosis does not like the daylight but flourishes vigorously in the dark, and the operation aims to remove all the conditions favoring this. He uses Mosetig's filling and Beck's paste as needed after the diseased tissues have been removed. The cleft is then packed with gauze and closed up again. The slit fistula openings are also packed with gauze. Twenty-six illustrations accompany the article.

Berliner klinische Wochenschrift

September 1, L, No. 35, pp. 1597-1644

54 Radio-Active Therapy in Internal Diseases. (Ueber Dosierung und Methodik der Anwendung radioaktiver Stoffe bei inneren Krankheiten und die erzielten Heilwirkungen.) F. Gudzent.

55 High-Frequency Currents in Therapeutics. (Zur Behandlung mit Hochfrequenzströmen.) A. und W. Laqueur.

56 Serodiagnosis of Pregnancy. (Der Abderhalden'sche Fermentnachweis im Serum von Schwangeren.) P. Schäfer and Exler.

57 *Practical Importance of the Relations between the Lymph-Nodes and Neighboring Body Cavities. M. Westenhöfer.

58 *Important Sources of Error in the Phenolsulphonephthalein Test of Kidney Functioning. M. Roth.

59 Plastic Operations on the Nose. F. Koch.

60 *Production of Radio-Activity from Non-Radio-Active Elements. M. Levy-Dorn.

57. **The Lymph-Nodes in Connection with the Body Cavities.**—Westenhöfer describes three anatomic specimens of anthracosis in which the lymph-nodes outside the chest showed signs of the anthracosis. In one, the lymph-nodes in the supraclavicular fossa on each side and in the right axilla contained the inhaled coal-dust; in the second, it showed in the lymph-

nodes below the diaphragm along the A. celiaca, and in the third specimen in the epigastric lymph-nodes at the cardia of the stomach. These findings are very significant as they show that the present conceptions of the connection between the lymph-nodes and the neighboring cavities of the body need revision. He states that he has found similar specimens in four pathologic museums, and he is convinced that cancer and tuberculosis may spread in the same way as the coal-dust was carried in these cases.

58. **Sources of Error in the Phenolsulphonephthalein Test of Renal Function.**—Roth states that conditions in women with genital disease or during pregnancy interfere with the test. He also says that if the urine is not all drawn, there may be enough residual urine to interfere with the findings. In measuring the urine, the residual urine must be considered. He found that different makes differed widely in the reactions observed. The lumbar muscles are better suited for the injection, he thinks, than the gluteal; with the latter erroneous findings are liable to result from defective absorption and also from a difference in the depth to which the needle is introduced.

60. **Radio-Activity Induced by Non-Radio-Active Elements.**—Levy-Dorn states that the spark between the electrodes of an induction coil—not in a vacuum—has considerable penetrating power. A photographic plate in three layers of black paper was affected by the rays from this spark, and the ordinary fluorescent screens were lighted up. These rays issue from the cathode. The rays rendered the objects receiving them radio-active for a time, up to two hours in his experiments. The photographic power was equivalent to that of 1/7 mg. radium when the spark was 10 cm. long, with a current of 3 milliamperes, a lead cathode, and twenty minutes' exposure.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

September 8, XVII, Nos. 1-3, pp. 1-296

61 *Prostatic Enlargement. M. Lissauer.
62 *Scorbutus in Young Children. (Moeller-Barlow'sche Krankheit.) C. Hart.
63 *Ulcerative Colitis. J. Kretschmer
64 *General Anesthesia with Internal Disease. (Grundlagen der Indikationsstellung für die Allgemeinnarkose bei gleichzeitig bestehenden inneren Erkrankungen.) M. v. Brunn.
65 *Connection between Disease of the Veins and the Female Genital Organs. R. T. Jaschke.
66 *Operative Treatment of Abscess in the Lung Not Due to Tuberculosis or Bronchiectasia. (Lungeneiterungen und ihre operative Behandlung.) K. Friedmann.
67 Acute Decubitus. W. Zipperling.
68 *Non-Traumatic Tetanus. D. Natonek.

61. **Prostatic Enlargement.**—Lissauer reviews 158 articles that have been published on the subject of hypertrophy of the prostate in recent years. The clinical picture with atrophy of the prostate seems to be practically the same as with hypertrophy. Malignant degeneration of the prostate may also induce the same set of symptoms; the frequency of cancer in the prostate is an additional argument in favor of operative treatment when there are symptoms from the prostatic changes. Albarran found malignancy in fourteen of 100 cases of hypertrophy of the prostate; Kümmel nine times in forty-one cases; Burckhardt eight times in 172, and Steiner twelve times in ninety-six cases. Salinger even goes so far as to assert that in every case of enlargement of the prostate in the elderly, the possibility of cancer should always be considered. The mortality of operations on the prostate was 7 per cent. in Freyer's 432 operations of the kind; 15 per cent. in Cahn's forty cases, and 6.6 per cent. in Steiner's experience with uncomplicated cases, while it was 32 per cent. in his infected material.

62. **Scorbutus in Young Children.**—Hart has found only fifty-one articles on this subject in recent years. He summarizes them and reports anatomic research and experiments on monkeys which have confirmed the identity of scorbutus in both infants and adults. The bone changes are identical but he warns that the diagnosis may be difficult when the classic symptoms are absent: bleeding of the gums, pains in movements and swelling of the joint ends of the bones, generally in the leg, while the joints themselves are spared. Differentiation is scarcely possible when this classic triad is not pronounced or scarcely developed. Exophthalmos may be the only symptom for a time of infantile scorbutus; Habs had a case of this kind which he was unable to explain until the eyelids became discolored, like a "black eye." Small linear hemorrhages in the upper lid were evident in Hart's experiments on monkeys.

The sudden appearance of the swelling of bones is often a clue to the diagnosis. Special emphasis is laid on the warning never to incise one of these swellings; they retrogress soon and do not need incising, while the danger of infecting the subperiosteal hematoma is great. The hematoma may be very large; in one of Hart's monkeys the entire skull was capped by a subperiosteal hematoma. Hematuria may be the early and only sign of a hemophilic tendency, and it may occur with or without actual nephritis. Finkelstein has reported a case of fatal hemorrhagic nephritis in two brothers fed exclusively on sterilized milk, and he explained the clinical picture as a manifestation of infantile scorbutus. The sensitiveness of the bones is an early sign of true scorbutus in young children; they draw up the legs on the abdomen at the lightest touch. The prompt subsidence of the fever when raw milk is given confirms anew the importance of dietetic treatment. Anatomic restitution is a very slow process, and cases are known of return of the symptoms of scorbutus. Finkelstein has reported recurrence after thirteen months of apparent recovery.

Prophylaxis is the main point, avoiding artificial and highly sterilized food for young infants from the very first. If they are absolutely necessary, the period of their use should be restricted to the minimum.

63. **Ulcerative Colitis.**—Kretschmer reviews fifty articles and states that some of the authors mention cases of gonorrheal, syphilitic and tuberculous origin or secondary involvement. Cobliner has reported a case in which the affection evidently had developed from the prolonged use of mercuric chlorid taken according to the therapeutic dosage. Ulcerative colitis is peculiarly tenacious, but there may be remissions with intervals of supposed health for weeks or months. The symptoms are about the same as with cancer of the colon, but direct visual inspection shows the numerous scattered small necrotic scabs, red granular mucosa and subepithelial hemorrhages characteristic of ulcerative colitis. With cancer at the sigmoid flexure, the mucosa generally looks pale. Local treatment is almost indispensable; for this hydrogen dioxid, potassium permanganate, silver nitrate or bismuth are commended as also starch enemas to be retained and hot gelatin enemas. In the majority of cases the ulcerative colitis is restricted to the sigmoid colon; this permits effectual direct local treatment with 2 or 5 per cent. silver nitrate solution or 5 or 10 per cent. zinc chlorid, after the parts have been thoroughly cleansed. Dry powders can also be applied or a strip of gauze dipped in 0.25 per cent. silver nitrate solution can be introduced and left to the next defecation, as Albu recommends. With skill and care these local measures do not distress the patient. Operative treatment is the last resort. To determine whether the colon has entirely healed, Boas examines the rinsing water passed from the artificial anus to the natural anus; if it is free from blood, pus and Charcot-Leyden crystals, the ulcerative process may be regarded as definitely cured and the artificial anus may be closed up.

64. **General Anesthesia with Internal Disease.**—Brunn lists 319 titles bearing on the necessity for extra care in general anesthesia, and discusses the views presented in them. He emphasizes anew the fact that ether promotes the secretion of saliva to such an extent that it is difficult to prevent aspiration of saliva and with it of infectious germs. The assumption that the secretion in the air passages is likewise increased in the same measure is not borne out by the facts observed; the morbidly profuse flow of saliva is the danger. This can be prevented by preparing the patient with a preliminary dose of atropin or other secretion-reducing drug, and by placing the head in such a position that mucus and

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saliva will not accumulate in the throat ready to be aspirated into the air passages. The danger for the lungs from ether is thus not an inherent chemical property, and it merely requires technical skill to avoid it. The lung parenchyma may be injured by ether as by any general anesthetic, but no more so than with others. The experiences with local anesthetics have brought into prominence the fact that in many cases it is not the anesthetic used or the anesthesia which is responsible for postoperative pneumonia, but the location of the field of operation. If it is at a point where afterward the fear of pain or the mode of dressing interferes with the expansion of the lungs in breathing, this alone may entail postoperative pneumonia. This should be borne in mind in determining the indications for an operation. Especially dangerous in this respect are laparotomies and operations for hernia, cancer of the breast and goiter. Another danger emphasized is that during general anesthesia the bactericidal power of the lungs is materially reduced. The liver and kidneys are particularly susceptible to the toxic action of chloroform, and this should never be used when either is below par. Tardy chloroform fatalities present usually the picture of acute yellow atrophy of the liver, and the use of chloroform with known existing hepatitis is stigmatized by Brunn as actual malpractice.

65. **Connection Between Disease of the Veins and the Female Genital Organs.**—Among the points which Jaschke gleans from this review of 376 listed articles on this subject is the warning that in the operative treatment of gynecologic pyemia it is important to ligate the median iliac vein, as this is practically the sum of the anastomoses between the different systems of veins in the pelvis. The internal iliac vein, however, need not be ligated as this conveys merely the blood from the rectum and muscular floor of the pelvis. Six cases of gonorrheal phlebitis in women are on record. In treatment of phlebitis few realize the importance of keeping up the bed-rest long enough. The results of operative treatment of the thrombophlebitic form of puerperal fever do not seem very encouraging to date. The great difficulty is to know when to operate; any chill may be the last one and the decision may come too late, or the patient may recover without the operation when the odds seemed all against this. Klein has reported a case in which a patient with typical puerperal pyemia of the severest type and manifest thrombosed veins refused all operative measures and began to convalesce the sixteenth day, after fifteen rigors. Recovery is known even after 100 chills.

The outcome depends in large part on the virulence of the bacteria involved. For this reason operative measures seem most promising in the subacute and chronic cases of pyemia and of little use in the acute forms. The statistics give little idea of the value of ligation of veins for puerperal pyemia; Klein had three deaths in four cases; Latzko seventeen in twenty-seven operations; Bumm seven deaths in ten operations, and four other surgeons one out of two cases each.

In regard to the development of thrombi, all seem to agree now that mechanical causes interfering with the normal flow of blood but not restricting it entirely are the main factors involved. As in any stream, sediment drops down when the current grows more sluggish and at points where eddies form. The blood platelets drop out first and then the leukocytes; there is not a trace of fibrin in a recently formed thrombus but it develops as the current is arrested above. The veins most inclined to thrombosis are always the ones with naturally the most sluggish current; they feel first and most severely any let-up of the expulsive force of the heart. Any weakening of the muscular action of the heart is thus extremely important for the development of postoperative thrombosis. With incipient insufficiency of the heart muscle, prolonged general anesthesia is liable to injure the heart further to such an extent that the general circulation is much below par during the first few days afterward. By getting the patients up early Jaschke has succeeded in warding off thrombosis systematically during the last two years except in a single instance (a patient with an old cancer), while he has had venous thrombosis occur in a number of patients who were obliged to stay in bed longer.

Chlorosis and anemia naturally predispose to thrombosis on account of the sluggish circulation. An important but avoidable additional factor in thrombosis is any operative or other injury of the vessel walls; systematic avoidance of clamps and ligatures *en masse* and other measures liable to injure vessels ward off thrombosis. Myoma, carcinoma and large tumors with dilated veins predispose to thrombosis and hence general anesthesia should be avoided in such cases as far as possible, and the patients should leave the bed early. Jaschke advises getting the patient out of bed for a brief time even the day of the operation in case of anemia or cancer. He cites some Vienna statistics which show that since this has been systematically done there has been no thrombosis among 2,524 parturients getting up from the first to the third day, while there were four cases in 2,500 who did not get up till later. In 387 operative cases there were 0.5 per cent. with thrombosis among those got up early and 2 per cent. among 300 left in bed, including three cases of fatal embolism.

66. **Operative Treatment of Abscess in the Lung.**—Friedmann lists 121 articles published since 1900 and seven others which contain practically the total bibliography on operative treatment of suppurative processes in the lungs outside of tuberculosis and bronchiectasia. He draws a number of conclusions from study of this material. See abstract 117 below.

68. **Non-Traumatic Tetanus.**—Natonek reviews 310 articles, alphabetically listed, the last one cited being Willson's article in THE JOURNAL, 1902, xxxviii, 1147. Natonek classifies the cases according as the tetanus developed after trauma without visible external injury; after severe chilling, the "rheumatic form of tetanus" (he cites a number of cases in which the chilling just preceded the first symptoms of the tetanus and evidently cooperated in its development either by reducing the resistance to or enhancing the virulence of the germs); tetanus after spontaneous skin lesions, including freezing and burns; tetanus infection by way of the air passages, teeth, tonsils, alimentary canal or ear (three cases are reported in which infection from the ear was evident; the bacilli were cultivated from the ear discharge in one case); tetanus following operations or after subcutaneous injections or following vaccination. Ninety-three pages are devoted to this comprehensive review of what is known to date in regard to non-traumatic tetanus. Among the practical conclusions of the work is the advice to vaccinate always by superficial scarification and never shut out the air, so that if any tetanus germs are in the virus they will not find conditions propitious to their development.

Deutsche medizinische Wochenschrift, Berlin

August 28, XXXIX, No. 35, pp. 1665-1712

69 *Radical Operation for Primary Cancer of the Lung. J. Rotter.
70 *Nervous Excitability in Rachitis. M. Kassowitz.
71 *Typhoid Plus Measles. (Typhus und Masern.) H. Jastrowitz.
72 Excessive Elimination of Glucuronic Acid in Tetany in Infants. P. Freund.
73 *Respiratory Resonance in Lungs. (Ueber einen respiratorischen Perkussionsschallwechsel der Lunge und seine diagnostische Verwertung.) B. Molnar
74 Human Blood-Serum as Culture Medium for Diphtheria Bacilli. E. Martini.
75 Experimental Immunization with Cultures of Syphilis Spirochete. J. Schereschewsky.
76 *Attempt at Criminal Abortion in Absence of Pregnancy. E. Zweifel.
77 Transplantation of Tendons. (Neue Gesichtspunkte auf dem Gebiete der Sehnenüberpflanzung.) A. and E. Stoffel.
78 Formaldehyd Interferes with Urobilin Reaction. T. Hausmann.
79 Advantages of Combining Tuberculosis Dispensaries with the Inebriety Dispensaries. (Die Kombinierung der Auskunfts- und Fürsorgestellen für Lungenkranke mit Auskunfts- und Fürsorgestellen für Alkoholkranke.) P. Hesse.
80 Inheritability of Acquired Properties. (Vererbung erworbener Eigenschaften.) G. Heimann.

September 4, No. 36, pp 1713-1768

81 *Cosmetic Dermatology. (Aerztliche Kosmetik der Haut.) E. Kromayer.
82 Phosphorus-Cod Liver Oil in Rachitis. M. Kassowitz.
83 Radiotherapy of Cancer. (Behandlung des Krebses mit Mesothorium und ihre Kombination mit anderen Verfahren.) A. Pinkuss.

84 *Partial Operations for Myoma. H. Freund.
85 Behavior of Duodenum Content with Catarrhal Jaundice and Duodenal Processes. J. Matko.
86 Transformation of Dermatitis. (Ueber Metamorphosen primärer Hautefflorescenzen.) K. Herxheimer.
87 High Infant-Mortality in Hot Weather in the Spring. (Steigerungen der Säuglingssterblichkeit im Frühjahr.) H. Liefmann.
88 Nature of Physiologic Stimulus. P. Grably.
89 Causes of Pneumonia. (Ursachen der Lungenentzündung.) Kruse.
90 Pediatrics in Relation to Public Health and Economics. (Die sozialen Beziehungen und Aufgaben der Kinderheilkunde.) M. Thiemich.

69. **Operation for Cancer of the Lung.**—Rotter reports the case of a man of 51 with primary carcinoma in the right lung which he treated by resection of the entire lower lobe and part of the diaphragm. The first symptoms had been noted about a year before, oppression and pains. The operation lasted for more than two hours but the patient recovered after a second operation two months later at which the large defect left in the chest wall was closed with a pedunculated flap. A severe febrile sore throat with much catarrh in the air passages led to coughing which induced dyspnea and the patient died with symptoms of suffocation just before the end of the third month. The case is illustrated and compared with twenty-two cases on record of resection of part of the lung. In seventeen cases in which the outcome is known eleven patients survived. In this group the operation had been done for tuberculosis in two cases, for bronchiectasia in seven cases and for tumor in two. One of the six fatalities was due to sepsis from the necrotic stump of the hilus, one to emphysema, one to acute pneumothorax and two to vagus reflex action.

In his case the operation had been attempted and three ribs resected before the diagnosis of cancer was certain. The patient was then transferred to another institution where a differential atmospheric pressure apparatus was available; but the operation proper did not follow until nearly six weeks later.

70. **Excessive Nervous Excitability in Rachitis.**—Kassowitz states that in 370 cases of spasm in the glottis 125 of the children were under 6 months old and 260 not yet one year old. In the total 370 cases the fontanel was closed in only four of the infants, although not less than 110 were over a year old; 118 had no teeth although they were over six months old. He thinks that these findings indicate a tendency to rachitis and a connection between rachitis and spasmophilia. Another argument in favor of this is the connection between the evidences of spasmophilia and the season, paralleling in every respect the seasonal recurrence of rachitis in the months of the year in which infants are confined in the house. (He has previously called attention to this coincidence, suggesting that rachitis may be a manifestation of poisoning from vitiated air.) An additional argument is the remarkably favorable action of the specific treatment for rachitis in the nervous disturbances of spasmophilia. The benefit from phosphorus is convincing, he declares.

71. **Typhoid plus Measles.**—The child in question had not only typhoid and measles but pneumonia, and yet the combined syndrome was not serious. Jastrowitz reports three other cases of atypical typhoid; if there had been a complicating infectious disease the typhoid would have escaped recognition entirely. He has been able to find only three cases on record of typhoid plus measles and four of measles plus paratyphoid. In his first case the assumption was that measles was occurring in a typhoid bacilli carrier, but this was disproved by the persistence of the fever after the measles eruption had subsided and by the diarrhea a week after the measles, by the roseola and by the disappearance of the typhoid bacilli from the stools during convalescence. The other members of the family had typhoid bacilli in the stools but none had had any symptoms from the typhoid infection except that the spleen was unduly large in one. He believes that mild typhoid infections in children are an important factor in the spread of the disease, and urges isolation and free hospital treatment even in the mildest cases when strict isolation in the home is not possible.

73. **Varying Resonance in the Lung as a Sign of Tuberculosis.**—Molnar refers to the familiar fact that the percussion sounds in the lungs vary in intensity with shallow and deep respiration. In health, with weak percussion and deep inspiration the percussion grows fainter; with strong percussion and deep inspiration it grows louder. Over a tuberculous process this change in the sound, he says, is reversed: the sound grows louder with faint percussion during deep inspiration when there is an incipient tuberculous process in the apex below. The contrast with the opposite change noted over the sound apex is striking. He theorizes to explain the causes for the changes.

76. **Attempts at Criminal Abortion in the Absence of Pregnancy.**—Zweifel comments on the peculiar gravity of these cases as the women keep repeating their efforts to bring on abortion when no results follow the first attempt.

81. **Medical Cosmetic Procedures.**—Kromayer discusses in turn the treatment of horny processes, vascular anomalies, affections of the sebaceous glands, disfiguring pigmentation or tumors and disease of the hair. He says of the subeczematous condition of the skin, to which too frequent scrubbing of the hands predisposes, that the roughened skin is suffering from lack of both water and fat. While the skin is still wet, it should be rubbed with a salve to prevent the loss of the water; to wait before applying the salve or cold cream until the hand is dry defeats the purpose. He says of corns and callous processes that excision does little good as the connective tissue beneath has become sclerotic and recurrence inevitably follows. Radiotherapy, on the other hand, influences the connective tissue and restores normal conditions in it and the cure is complete and permanent. Radiotherapy is also almost invariably successful in curing disfiguring proliferation of the tissues of the nose, potato nose, rhinophyma. If there is considerable new formation of blood-vessels, compression and exposure to the blue light of the quartz lamp will correct conditions. It is difficult, however, to apply compression effectually to the nose, and he describes his method of obliterating the prominent vessels with the electric needle (*Spitzbrenner*), heated red hot and applied only for the fraction of a second. A combination of different forms of radiotherapy is useful for nevi, but even at the best the results are far from perfect. The skin never acquires a normal aspect and the reports in the literature, he thinks, are drawn too favorably. As a rule the patients are generally better pleased with the outcome than the physician. The patients are satisfied to find that on account of the partial shriveling of the vessels in the nevus it does not become so congested and conspicuous on exposure to cold, etc., as previously.

84. **Partial Operations for Uterine Myoma.**—Freund cuts out the myoma with a wedge of the uterine walls, including the entire fundus and body of the uterus. This retains the adnexa and a functionally capable uterus, while it permits thorough inspection of the interior of the uterus. He states that it is astonishing how soon the uterus regains normal conditions as to size, shape and consistency.

Deutsche Zeitschrift für Chirurgie, Leipsic

August, CXXIII, Nos. 5-6, pp. 417-618

91 *Traumatic Epilepsy and Its Operative Treatment. K. Matthiae.
92 *Operative Treatment of Traumatic Paralysis of Peripheral Nerves. H. Luxembourg.
93 *Congenital Presacral Tumors. W. Parin.
94 *Injury of Crucial Ligaments of the Knee. (Ueber die seitliche Abreissung der Menisken.) Blecher.

91. **Traumatic Epilepsy.**—Matthiae devotes 136 pages to the summaries of 326 cases of operative treatment of traumatic epilepsy, compiled from the literature, giving details of the operation and the findings, and followed by comparison and discussion of the final outcome. He adds two more cases to the list from his own experience. In all but sixty cases the epilepsy was of the jacksonian type. The list is arranged alphabetically by the surgeons' names and the total material is tabulated under various headings. One point thus brought out is that some surgeons, in all their cases, were so much

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more successful than others, possibly from superior technic. The after-care seems to be supremely important. Some gave opium or bromid afterward and think it helped; this certainly seemed to be the case in some instances. Other patients seemed to do equally well without it. Absolute abstention from all physical or mental effort for a time afterward seems indispensable. Alcohol exerts a particularly noxious influence on persons inclined to epilepsy, and there can be no question that the bad outcome in some of the cases was due to too free use of spirits afterward. This was particularly evident in one of Braun's cases in which after several years free from the jacksonian epilepsy after the operation, the attacks returned when the young man drank much liquor. He continued to drink and finally developed confirmed epilepsy.

The data presented show that the length of the interval between the accident and the outbreak of the epilepsy does not seem to affect the prognosis. The failures in some cases are possibly explained by an inherited taint. The largest percentage of cures was in patients between 20 and 30: 11 per cent. have been cured for over five years; 6.7 per cent. of those under 10; 6.3 per cent. of those between 10 and 20, and 7.5 and 7 per cent. between 30 and 40, and 40 and 50. In the total 326 cases there were 19 deaths (18.1 per cent.), including three patients with genuine epilepsy. The condition was aggravated by the operation in one case of jacksonian epilepsy and two of genuine epilepsy. No effect was apparent in forty-two cases of jacksonian epilepsy and in seventeen of genuine epilepsy. The twenty-four absolute cures for over five years include two with genuine epilepsy between 20 and 30 and one between 40 and 50. The epilepsy was of two years' standing in eleven of these cases and over ten years in four; nineteen years in Schede's case.

The cured cases are tabulated separately and the point is emphasized that in all but one in this group the local findings amply explained the trouble. This was the case also in the two personal cases reported. The patients were men about 40 with epileptic seizures coming on a few weeks or a year after fracture of the skull. Neither has had any return of the seizures during the six or eight years to date. In conclusion Matthiae reiterates anew the warning that a brain once inclined to epilepsy cannot stand alcohol. Any injury of the skull seems to reduce permanently the tolerance for alcohol. Graf found a tendency to headache in thirty-four persons who had had fracture of the base of the skull and in a number the headache came on regularly after taking alcohol, even the smallest amount. Graf's group is particularly instructive as only three in the group had a claim for disability insurance.

92. **Operative Treatment of Traumatic Peripheral Paralysis.**—Luxembourg reports seven cases with the ultimate outcome, one in a sixteen months infant; two patients were boys of 14 and 18; one was a girl of 8, and the rest were men under 31. The various operations devised to meet different conditions are described in detail. The outcome was surprisingly good in all but one case. In this operative treatment was not applied until seven years after the nerve had been severed in an operation on a tuberculous focus.

93. **Presacral Tumors.**—Parin describes a case of congenital tumor developing inward from the sacrum, a teratoma, and compares it with fifteen recorded in the first ten years of the century. His patient was a young woman who since the age of 10 had had suppurating fistulas in the sacral region. A teratoma as large as a man's fist was removed at two sittings from between the sacrum and rectum. In addition Parin summarizes six other cases of tumors in the sacrum-coccyx region in which malignant disease developed. This is so rare, however, that he advises waiting before removing a congenital tumor in this region until the patient has grown stronger and more resistant. Only one fatality is known in the last thirty-five years from removal of a presacral tumor later than early infancy.

94. **Internal Injury of the Knee.**—Blecher describes three cases of injury of the knee after which the patient held his knee flexed and immovable and the space between the articulating surfaces was extremely tender. This characteristic picture keeping up for two weeks and more is encountered when the semilunar cartilage has been torn off along the side and the torn off cartilage then lies like a foreign body between the articulating surfaces. If torn off so completely that it slips up between the condyles, the trouble is intermittent, incarceration occurring only when the cartilage slips down and gets nipped in the joint. If conditions do not right themselves under eight or ten days of ordinary treatment for a sprained knee, then the knee should be opened without delay and the cartilage reduced and held in place with a stitch or two unless it shows signs of severe injury, in which case it should be removed. He aims to retain it whenever possible.

Medizinische Klinik, Berlin

August 31, IX, No. 35, pp. 1391-1449 and Supplement

95 *Surgery of the Peripheral Nerves. A. Stoffel.
96 Dietetics in Nephritis. T. Janowski.
97 Herpes with Diphtheria. F. Reiche.
98 Duodenal Ulcer. (Zur Statistik des peptischen Duodenalgeschwürs.) E. Melchior.
99 Rheumatism. (Wandlungen in den Ansichten über Rheumatismus.) B. Bosanyi.
100 Therapeutic Venous Congestion in Treatment of Cardiovascular Disease. (Die Phlebostase als physikalisches Heilmittel bei Kreislaufstörungen.) S. Lilienstein.
101 Treatment of Gout at Vichy. Chabrol.
102 Massage of the Nerves in Treatment of Headache. A. Wiszwianski.
103 The Gall-Bladder and the Stomach. (Gallenblase und Magenmechanismus.) H. Hohlweg.
104 Vital Staining. (Einfluss physikalischer Eingriffe auf die Erscheinungen der vitalen Färbung.) Z. v. Dalmady.
105 Radiology of the Stomach. II. (Neuere Ergebnisse der Radiologie des Magens.) Hürter.

95. **Progress in Surgery of Peripheral Nerves.**—THE JOURNAL has previously mentioned Stoffel's work in this line, 1913, lx, 793. He has confirmed the fact that a nerve is

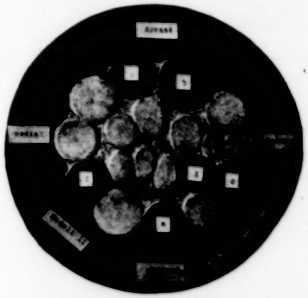

DIAGRAM OF PROXIMAL STUMP OF TIBIAL NERVE IN LOWER HALF OF THIGH

a = the tract forming the communicans tibialis.
b = the tract for the gastrocnemius muscle and the dorsal part of the soleus.
c = the tract for the ventral part of the soleus.
d = the tract for the flexor longus hallucis.
e = the tract for the tibialis posticus.
f = the tract for the flexor longus digitorum.

The rest of the cross-section is made up mostly of the motor tracts for the short flexor muscles and the tracts of the sensory plantar nerves.

merely a bundle of separate motor and sensory fibers, and that it is possible to trace in a transverse section of the nerve the various fiber-tracts which pass to given muscles. At a touch with a needle electrode to the tract, the muscle contracts. He has been the explorer of the topography of the transverse section of the nerves, and has applied the points thus learned in very successful treatment of spastic paralysis, weakening the innervation of the paralyzed muscles and reinforcing the strength of the antagonists. The groups of muscle involved in the spastic paralysis are released from their bondage by partial resection of the corresponding motor nerve tracts. He had performed 172 operations on peripheral nerves up to June, 1913.

He applies the same principle in treatment of sciatica, sifting out the sensory from the motor fibers and severing those which innervate the points where the pain is felt. He refuses to accept a sciatic nerve, saying that there is only a skein of nerve fibers running along the back of the leg to convey motor and sensory impulses. The general picture of sciatica can be resolved into a number of sharply defined clinical pictures which we are accustomed to group and regard as a single morbid entity and call sciatica. He has operated on this principle in a number of cases with unfailing success; all of the patients are permanently cured. In the first case of the kind, after four years of intolerable sciatica there has been no return of the pain during the year since the operation and the pronounced scoliosis has entirely retrogressed.

He gives the patient a blue pencil and asks him to mark on his leg the points where he experiences pain. The drawing thus obtained could not be a more perfect representation of the course of a given sensory nerve if it had been drawn by a skilled anatomist. Stoffel then studies the attitudes of the patient, the positions assumed in standing, walking, sitting and reclining, to learn which positions are assumed to escape the pains. Each of the sensory tracts has its own mechanical conditions, knowledge of which is important for identification of the tract involved. When the nerve tract involved is thus located, he resects it for about 15 cm. and rolls up each stump in turn on forceps until it tears. The sciatica is thus cured while all the motor and all the other sensory tracts are left unmolested.

In the *Munchen. med. Wchnschr.*, June 24, 1913, Stoffel described more in detail his technic for treatment of sciatica (p. 1366). The accompanying illustration is taken from that article. He seeks out the nerve tracts involved by testing the various fibers with a needle electrode, the cathode of a galvanic apparatus, lifting the fibers only by the neurilemma with great care not to injure them, spreading the tracts by working into the delicate connective tissue separating the different tracts of fibers and thus isolating the one involved.

Münchener medizinische Wochenschrift

September 2, LX, No. 35, pp. 1921-1976

106 *Spirochetes in the Brain in General Paresis. (Ueber den Nachweis der Spirochäten des Paralytikergehirns im Tierexperiment.) H. Berger.

107 Biologic Cerebrospinal Fluid Test for Cancer. (Ueber Komplementbindungsreaktion mit Liquor cerebrospinalis bei Karzinom.) F. v. Dungern and Halpern.

108 Serodiagnosis of Pregnancy. (Weiterer Beitrag zur Kenntnis der Spezifität der Abwehrfermente. Das Verhalten des Blutserums schwangere Kaninchen gegenüber verschiedenen Organen.) E. Abderhalden and E. Schiff.

109 *Laryngeal Tuberculosis Does Not Contra-Indicate Compressive Treatment of Pulmonary Tuberculosis. Zink.

110 *The Pauses in Normal Respiration. (Die Zäsur im hörbaren Atmen.) R. Geigel.

111 *Serotherapy in Sepsis. (Behandlung schwerster Sepsis mit intravenöser Infusion grösserer Mengen menschlichen Normalserums nach vorausgegangenem Aderlass.) H. Bennecke.

112 Operation for Inguinal Hernia. (Zur Technik der Radikaloperation von Leistenbrüchen.) P. Kleinschmidt.

113 Efficiency of Autolysates in Treatment of Cancer. (Zur Behandlung maligner Geschwülste.) H. Lunckenbein.

114 Arsenic Springs. (Neuere klinische Erfahrungen über die Wirksamkeit der Dürkheimer Maxquelle.) C. Herrligkoffer and J. Lipp.

115 Obesity Reduced by Electricity. (Das elektrische Entfettungsverfahren mittels des "Degrassator" nach Dr. Schnee.) A. Schnee. See abstract 83, p. 1333.

116 Serodiagnosis of Pregnancy. (Zur Frage von der Organspezifität der Schwangerschaftsfermente gegenüber Plazenta.) G. Plotkin.

117 *Recent Progress in Operative Treatment of Pulmonary Disease. F. Sauerbruch.

106. **Experimental Syphilitic Lesions Induced by Spirochetes from Brains of Paralytics.**—Berger inoculated twenty rabbits with material from the brains of twenty patients with progressive paralysis. He obtained the material in the form of minute cylinders cut out with a drill and cannula under light general anesthesia. The cylinders were transferred to warm saline and then cut up with scissors, ground in a mortar and injected into the left testicle of the rabbit. The brain was punctured in both frontal lobes and only one of the patients seemed to experience any ill effects; some with a tendency to hydrocephalus were directly benefited by the procedure although the benefit was but transient. In the one unfortunate case, the puncture caused bleeding from a vessel in the cortex and the patient died five days later. He was a man of 51 with advanced paralysis of over two years' standing, and it was learned afterward that he had a history of hemophilia. The inoculation gave positive results in three of the rabbits, confirming the statements that the brain in progressive paralysis shelters living spirochetes, capable of inducing actual—although not very severe—syphilitic lesions in animals. Berger quotes in conclusion Hippocrates' words in regard to the necessity for venturing to a certain extent in the treatment of hitherto incurable diseases as the patients have nothing to lose, while if success should be realized they could be cured.

109. **Laryngeal Tuberculosis No Contra-Indication to Compressive Treatment of the Lungs.**—Zink reports five cases to confirm his assertion that tuberculous laryngitis not only does not contra-indicate therapeutic pneumothorax, but that the latter has a marked beneficial influence on the throat affection. Among his seventy-six patients treated with the compressive pneumothorax, twelve had laryngeal tuberculosis of greater or less severity. The mild forms promptly healed without other measures. Under application of powders or mentholated oil and strict enforcement of the rule of silence, even the four severest cases healed completely. In only one patient did the process resist this treatment, and in this case there were severe intestinal tuberculous lesions. Zink ascribes the benefit to the exclusion of all the factors which cooperate to maintain the laryngeal process, the fever, the progressive course of the pulmonary process and the mechanical injury from coughing and from expectorating and the passage of virulent bacilli in the sputum—all of these factors drop out after the lung has been immobilized by the therapeutic pneumothorax. As the general health improves, the larynx shares in the general uplift. Still another element that must not be overlooked is the fact that the toxins generated in the lungs are not swept throughout the body as before but are retained in the focus; this gives the body a chance to recuperate and augment its resisting powers. Zink regards this transformation of the clinical picture after the artificial pneumothorax as the most important factor in the healing of the lesions. Even ulcerative tuberculous processes in the larynx do not contra-indicate the compressive therapy, but when the process has spread throughout the entire region, involving the epiglottis in the perichondritic process, with edematous swelling and ulceration, relief comes too late at this advanced stage.

110. **Interval between Acts of Normal Respiration.**—Geigel regards the interval at the end of audible expiration, before audible inspiration begins, as a valuable sign as to whether the respiration is really of the normal type or not. It is often impossible to count the respiration-rate, but it is generally easy to note whether there is this normal pause between expiration and inspiration. There is no interval in febrile conditions; the acts of respiration succeed each other without a pause, and improvement of conditions is often revealed first by the reappearance of the brief interval between the acts of respiration. It can be easily detected even in the dark, and is a valuable aid in the prognosis. Geigel found the interval marked when respiration was 26, 30 or 32 in sick infants, but when the respiration-rate became 42 or 50 there was no interval to be detected. He has coined the term *zäsur* to express this normal interval between the acts of audible respiration.

111. **Serotherapy in Sepsis.**—Bennecke announces that a remarkable turn for the better in five cases of extremely severe sepsis followed intravenous infusion of 210 or 480 c.c. of normal human serum. This occurred with the recovery of the patients in three out of the five cases and transient improvement was obtained in one other case. The infusion had been preceded by venesection in each instance. The patients were between 6 and 20. Necropsy in the fatal cases failed to disclose any ill effects from the procedure.

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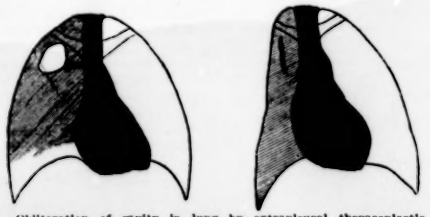
117. **Surgery of the Lungs.**—Sauerbruch gives the history of operative treatment of diseased lungs, and describes his own experiences in this line with illustrations of his large cabinet for negative atmospheric pressure and his adjustable retractor for enlarging the space between the ribs. He illustrates also other points in the technic as well as concrete examples of its application. He has operated in five cases in which both chest and abdomen were severely injured by crushing from the wheels of a vehicle or between cars. All the patients were saved by the operation. He opened the chest by an incision in the seventh intercostal space, attended to the injury of the lungs and then palpated the abdominal cavity through the diaphragm. The bulging upward of the diaphragm revealed at once hemorrhage below. He cut the diaphragm perpendicular to the direction of the fibers, thus opening up the upper abdomen. The oversight thus afforded is so extensive that removal of the spleen, for instance, by this route is simpler and easier than with a laparotomy.

In case of abscess in the lung, evacuation under differential pressure is a simple and harmless matter. He sutures the lung to the opening in the chest wall over the focus and then opens up the abscess with the actual cautery, sponges out the contents and drains. Very rarely does a fistula develop. Operative treatment has a record of over 70 per cent. of cures (Garré) while Villière was able to find records of only 25 or 20 per cent. cures under internal measures.

Sauerbruch has now a record of 113 cases in which he resected ribs enough to permit the wall of the chest to fall in and thus compress the lung beneath. In seventy-seven



Obliteration of cavity in lung by extrapleural thoracoplastic operation. Patient now cured.

of the cases the trouble was of tuberculous origin. Two patients succumbed to the effect of the operation and eleven died from the progress of their tuberculosis months and years later. This group includes five in which the abscess cavity had perforated and there was already severe mixed infection. Of the others, seventeen are practically cured; nineteen much improved, and only four failed to be benefited by the operation, while in three cases the affection seemed to be aggravated. In the group of much improved patients there are six or eight who seem to be on the road to complete recovery. The illustration is drawn from skiagrams of a patient now cured. Note the compression of the lung realized by resection of the bony framework of that side of the chest, and the obliteration of the cavity as the lung is squeezed into smaller compass.

The lesions of bronchiectasia seem to be the least amenable to surgical treatment, but his experience with twenty-five cases showed that although a complete cure was not obtained, yet the great improvement in the general health and reduction in the amount of sputum were very gratifying. On account of the hopelessness of merely internal measures, he thinks that operative treatment should be applied more generally. If it can be done in the earlier stage, the results will certainly improve to correspond.

Sauerbruch thinks that operative treatment of pulmonary tuberculosis has an important future. Progress must be along the lines of improved indications rather than further perfecting of the technic. The compression of the lung and obliteration of the cavity are of importance not only for the patient himself, but as reducing the danger for others. In eight cases Sauerbruch injected a filling when the thoracoplastic operation could not be rendered complete; the patients bore it well and although there were a few complications, yet the end-result was good in all. He emphasizes that these compressive operations on the lungs promise benefit only when the lung process has already showed a tendency to shrivel. The retraction of the lung after the ribs have been resected reduces it remarkably in size, an actual collapse obliterating all the cavities, and thus applying to the lung the principles of rest which are found effectual in treatment of tuberculous processes in bones and joints. The lymph does not circulate through the lung, and there is production of connective tissue to a surprising extent. Again and again he has witnessed the amount of sputum decline from 200 or 400 c.c. a day until finally there is no further expectoration. The fever frequently subsides at once after the operation. In the favorable cases the improvement continues a progressive course to a complete cure. He gives illustrations of the technic with which he resects, from the back, the ribs from the first to the eleventh, operating at one or two sittings. It is sometimes possible to resect the ribs merely directly over the cavity; Sauerbruch recommends for this a preceding therapeutic pneumothorax to compress the lower lobe when the cavity is in the upper. By selection of cases, by operating under local anesthesia, and with great attention to the after-care, he says that we can recommend this extra-pleural thoracoplastic method of treating tuberculous cavities in the lungs as a harmless intervention. Most of his patients were between 16 and 25, but others were up to 40 years old.

Wiener klinische Wochenschrift, Vienna

September 5, XXVI, No. 36, pp. 1113-1148

118 Sugar Content of the Blood. (Der Blutzuckergehalt unter normalen und pathologischen Verhältnissen.) R. Purjesz.
119 Subcutaneous Tuberculous Lesions. (Zur Kenntnis der subkutanen Sarkoide—Darier-Roussy.) R. Volk.
120 Arteriovenous Anastomosis with Beginning Gangrene. C. Goodman (New York).
121 *Electric Accidents. (Zur Kenntnis der Unfälle durch Elektrizität.) F. Fischl.

121. **Electric Accidents.**—Fischl reports a case in which a young electrician dropped to the ground unconscious as a short-circuited current of 5,000 volts passed from one hand to the other. Although the heart was on the route of the current, yet little injury followed; after brief bradycardia there was arhythmia but the pulse returned to normal the second day under digitalis, and there was not even abnormally high blood-pressure the morning after the accident. The electric burn of the hand was comparatively insignificant, a grayish line running through it resembling an old knife cut well on the way to healing. Consciousness returned after half an hour and the patient complained of headache and great sensitiveness to light, even with the eyes shut. There were also much depression, weakness and somnolency, with paralytic conditions in the muscles, but recovery was soon complete as the burns on the legs healed. Professional electricians do not seem to have to contend with the psychic shock usual under other conditions.

Zentralblatt für Chirurgie, Leipsic

September 6, XL, No. 36, pp. 1193-1240

122 Technic for Closing the Pleural Cavity after Operations Inside the Chest. (Verschluss der Pleurahöhle nach intrathorakalen Eingriffen.) L. Dreyer.
123 Treatment of Syndactylia. G. Lerda.

Zentralblatt für Gynäkologie, Leipsic

September 6, XXXVII, No. 36, pp. 1317-1348

124 *Primary Carcinoma of Fallopian Tube. J. Fonyo.

124. **Primary Tubal Cancer.**—Fonyo states that only 120 cases of cancer of the Fallopian tubes have been reported since 1886 in German, French and English literature, but he has encountered at Budapest two additional cases which he here describes in detail. He thinks that primary tubal cancer is more frequent than the literature would suggest. Comparatively few tubes removed for various reasons are examined for cancer; if this were done more frequently the number of cases of tubal cancer would certainly increase. His two patients

were in the fifties, and both had passed through three pregnancies. He compares the findings with those in cases on record, and states that the possibility of cancer is an argument for panhysterectomy in all dubious cases of disease in the uterine adnexa, removing at the same time the regional lymph-nodes. The bad outcome in the operative cases to date is due mainly to the lack of thoroughness in the operation and to the late stage at which the diagnosis was made.

Zentralblatt für innere Medizin, Leipsic

September 6, XXXIV, No. 36, pp. 905-928

125 Heart-Block from Irritation of the Vagus. (Fall von Ueberleitungsstörung, bedingt durch Vagusreiz.) H. v. Hoesslin.

Policlinico, Rome

September, XX, Surgical Section No. 9, pp. 385-432

126 *Technic for Obliterating a Vessel. (Un processo per la produzione della stenosi vasale.) I. Scalone.
127 Anomalies in Development of Lower Bowel. (Anormale evoluzione del peritoneo, dell'ansa ombelicale primitiva e del mesentere comune.) A. Comolli.
128 *Suture of the Heart. (Sulle ferite del cuore.) N. Leotta. Commenced in No. 7.

126. **Method for Reducing Lumen of Blood-Vessel.**—Scalone runs a curved needle through the superficial layers of one side of the wall of the vessel, then introduces it again at a distance beyond. By drawing up the ends of the thread, the wall between the two stitches is forced inward and the lumen is obstructed to that amount. By taking the stitches farther apart, the fold thus forced inward can be made as large as desired. If the suture thread pulls out, this is readily remedied by taking another stitch beyond. The special advantage of the technic is that the maneuver can be done without first shutting off the blood in the vessel, and the vessel does not have to be isolated. The technic can be applied just as well whether the vessel is detached from its bed or not. It is harmless, and the amount of stenosis can be graduated as desired. The same procedure can be repeated above and below as needed to operate on as long a segment of the vessel as desired. The obstruction is maintained by the natural tissues without extraneous substances in contact with the interior of the vessel.

128. **Operative Treatment of Wounds of the Heart.**—Leotta gives statistics which show recovery in 44.91 per cent. of 236 cases in which the heart was sutured. When the left ventricle was the seat of the injury, 46.29 per cent. of the 108 patients recovered; 39.28 per cent. of the eighty-four patients with the wound in the right ventricle; 77.77 per cent. of the nine with the wound in the left auricle, and 62.5 per cent. in the right auricle. One patient with both left auricle and ventricle injured died, and one of the two with both right auricle and ventricle injured. In thirty-five of the total 236 cases, the injury had been done with a firearm. The proportions of recovery with this were about the same as above except that both of the two patients recovered who had both the right ventricle and auricle or the left ventricle and auricle injured.

Riforma Medica, Naples

August 30, XXIX, No. 35, pp. 953-986

129 Thorium X in Disease of the Blood. (Sull-azione del torio X nelle malattie del sangue.) P. Sisto.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 9, LVIII, No. 6, pp. 369-448

130 *Diffuse Changes in the Brain with Cirrhosis of the Liver. (Over diffuse hersenveranderingen in een geval van levercirrhose.) R. de J. de Jong and W. Van Woerkom.
131 The Liver Cells with Metabolic Acidosis. (Onderzoek over levercellen bij stofwisselings-acidose.) P. G. J. Duker.

August 16, No. 7, pp. 449-528

132 *Neurosis of the Stomach or Duodenal Ulcer? (Maagneurose of ulcus duodeni.) M. A. de Kock.
133 *Anencephaly. B. Brouwer.

130. **Changes in the Brain with Cirrhosis of the Liver.**—In the case described with five illustrations an increased amount of glia fibers were found in the cortex and also increased numbers of glia cells. No signs of acute inflammation were detected. Very little seems to have been done along this line of neurologic examination of the brain in disease of the liver, and yet this may prove a rich field for investigation.

132. **Gastric Neurosis or Duodenal Ulcer?**—De Kock says that the rarity of cases of perforated duodenal ulcer in the Netherlands is due to the general ignorance of the existence of the chronic duodenal ulcer. No diagnosis of it is made. The Netherlands medical profession is still influenced by the German conception that the accompanying hyperacidity and other symptoms are due to a nervous affection of the stomach, and that there is no need to seek for an organic lesion. The Americans and the English, he states, have been pioneers in the recognition of ulceration in the duodenum, and de Kock hopes that their views may speedily be accepted in his country, and that the profession will not wait until the proper appreciation of duodenal ulcer has had to filter to them through German channels first.

133. **Anencephaly.**—Brouwer's illustrated article contains a histologic description of the central nervous tissues in a typical anencephalus. Also a carefully prepared outline for physiologic examination of living monsters of this kind; he specifies twenty-eight points to be recorded, including the behavior of the various reflexes and the response to the Wassermann test. Brouwer adds further a number of interesting physiologic deductions from the data presented, especially in regard to the elementary functions of the nerves. He regards the movements of an anencephalus as mostly of the nature of reflex movements; in his case the brain had evidently failed to develop properly on account of some local inflammatory process affecting the fetus.

Brazil-Medico, Rio de Janeiro

August 15, XXVII, No. 31, pp. 321-332

134 Transmission of Brazilian Trypanosomiasis by Insect Bites. (Molestia de "Carlos Chagas." Transmissão do T. Cruzi pela picada do T. megista.) M. Torres.
135 Reflex Movements of the Big Toe. (Sobre o phenomeno da extensão do grande dedo do pe associado aos esforços musculares.) O. de Souza and A. de Castro.

Semana Medica, Buenos Aires

July 17, XX, No. 29, pp. 117-172

136 Concentration of the Blood in Heart and Kidney Disease. (Dilucion y concentracion sanguinea en las cardio- y nefropatias.) C. B. Udaondo.

July 24, No. 30, pp. 173-228

137 Heated Ether for General Anesthetization. (Termo eterizacion General por el eter.) V. Delfino.
138 Painless Delivery. (La anesthesia en el parto normal.) J. A. Beruti.
139 The Campaign against Opium. (La lucha contra el opio.) V. Delfino.
140 Autotomy as Reflex or Psychic Act. V. Delfino.
141 Intoxication from Veronal; Two Cases. H. J. Rossello.

August 7, No. 32, pp. 289-344

142 *Epidemic Cerebrospinal Meningitis. J. Penna. Commenced in No. 31.
143 Relics of Three Ruptured Tubal Pregnancies of Different Dates Found at Laparotomy. A. Chueco and M. Lombardo.
144 Trachoma. (Tratamiento quirurgico del Trachoma. Procedimiento Helsrath-Kuhnt.) A. Gowland.

142. **Epidemic Meningitis.**—Penna seems to be quite successful with his method of treating epidemic cerebrospinal meningitis. He generally applies wet cups along the spine, with ice to the head, and purges with calomel sometimes giving also 1 gm. of potassium iodid and mercurial inunctions, as in syphilis. He applies lumbar puncture at need, and antimeningococcus serotherapy. His mortality was 32 per cent. in 200 cases of meningitis in which he injected the antimeningococcus serum into the spinal canal by lumbar puncture. Of late, he has supplemented this by intravenous injection of some of the 100 c.c. of the serum, his maximum dose. He reports a few cases in which the entire dose was injected into a vein, apparently attenuating the disease and hastening recovery. A second injection, twenty-four hours later, was sometimes given with a little smaller dose. He lays great stress also on hygiene of the mouth in the care of meningitis patients.

Hospitalstidende, Copenhagen

September 3, LVI, No. 36, pp. 1029-1052

145 Influence of Temperature on Wassermann Reaction. (Temperaturens indflydelse paa Komplementbindungen i Wassermann's Reaktion.) O. Thomsen and H. Boas.
146 Experiences with Noguchi's Luetin Reaction. (Undersøgelser over Noguchi's Luetinreaktion.) H. Boas and C. Ditlevsen. Commenced in No. 35.

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